

### **CHAPTER 3**

**1. The financial statements of Anna & Co. are as under:**

*Rs in million*

| As on 31-3-                     | 20X2 | 20X1 |
|---------------------------------|------|------|
| <b>Equity and Liabilities</b>   |      |      |
| Shareholders' Funds             | 2150 | 1400 |
| Share capital (Par value Rs.10) | 550  | 550  |
| Reserves and surplus            | 1600 | 850  |
| Non-current Liabilities         | 1008 | 971  |
| Long-term borrowings*           | 800  | 780  |
| Deferred tax liabilities (net)  | 88   | 72   |
| Long-term provisions            | 120  | 119  |
| Current Liabilities             | 824  | 743  |
| Short-term borrowings @         | 450  | 400  |
| Trade payables                  | 320  | 300  |
| Other current liabilities       | 38   | 30   |
| Short-term provisions           | 16   | 13   |
|                                 | 3982 | 3114 |
| <b>Assets</b>                   |      |      |
| <b>Non-current Assets</b>       | 1752 | 1228 |
| Fixed assets                    | 1600 | 1100 |
| Non-current investments         | 120  | 100  |
| Long-term loans and advances    | 32   | 28   |
| Current Assets                  | 2230 | 1886 |
| Current investments             | 82   | 78   |
| Inventories                     | 1200 | 960  |

|                               |      |      |
|-------------------------------|------|------|
| Trade receivables             | 893  | 802  |
| Cash and cash equivalents     | 14   | 12   |
| Short-term loans and advances | 41   | 34   |
|                               | 3982 | 3114 |

**Statement of Profit and Loss for Year Ending March 31, 20X2**

*Rs. in million*

|   |      |
|---|------|
|   | 20X2 |
| Revenues from Operations                                  | 3800 |
| Other Income  | 70   |
| Total Revenues  | 3870 |
| Expenses  |      |
| Material expenses   | 1500 |
| Employee benefit expenses                                 | 800  |
| Finance costs   | 180  |
| Depreciation and amortisation expenses                    | 80   |
| Other expenses  | 70   |
| Total expenses  | 2630 |
| Profit before Exceptional and Extraordinary Items and Tax | 1240 |
| Exceptional Items   |      |
| Profit before Extraordinary Items and Tax                 | 1240 |
| Extraordinary Items                                       |      |
| Profit Before Tax   | 1240 |
| Tax Expense   | 410  |
| Profit (Loss) for the period                              | 830  |
| <b>Dividends</b>  | 80   |

Prepare the cash flow statements of the year ending 31-3-20X2

2. The financial statements of Kiran Associates are as under:

*Rs in. million*

|                                 | 20X1  | 20X0  |
|---------------------------------|-------|-------|
| <b>Equity and Liabilities</b>   |       |       |
| Shareholders' Funds             | 5700  | 4900  |
| Share capital (Par value Rs.10) | 1500  | 1500  |
| Reserves and surplus            | 4200  | 3400  |
| Non-current Liabilities         | 3090  | 2920  |
| Long-term borrowings*           | 2500  | 2400  |
| Deferred tax liabilities (net)  | 250   | 210   |
| Long-term provisions            | 340   | 310   |
| Current Liabilities             | 2420  | 2200  |
| Short-term borrowings @         | 1300  | 1200  |
| Trade payables                  | 900   | 860   |
| Other current liabilities       | 170   | 100   |
| Short-term provisions           | 50    | 40    |
|                                 | 11210 | 10020 |
| <b>Assets</b>                   |       |       |
| Non-current Assets              | 4500  | 4023  |
| Fixed assets                    | 4000  | 3623  |
| Non-current investments         | 400   | 330   |
| Long-term loans and advances    | 100   | 70    |
| Current Assets                  | 6710  | 5997  |
| Current investments             | 250   | 220   |
| Inventories                     | 3800  | 3200  |

|                               |       |       |
|-------------------------------|-------|-------|
| Trade receivables             | 2500  | 2440  |
| Cash and cash equivalents     | 40    | 35    |
| Short-term loans and advances | 120   | 102   |
|                               | 11210 | 10020 |

### Statement of Profit and Loss for Kiran Associates for the year 20X0-20X1

*Rs. in million*

|   |        |
|---|--------|
|   | 20X1   |
| Revenues from Operations                                  | 10,000 |
| Other Income  | 70     |
| Total Revenues  | 10070  |
| Expenses  |        |
| Material expenses   | 5000   |
| Employee benefit expenses                                 | 2320   |
| Finance costs   | 500    |
| Depreciation and amortisation expenses                    | 250    |
| Other expenses  | 200    |
| Total expenses  | 8270   |
| Profit before Exceptional and Extraordinary Items and Tax | 1800   |
| Exceptional Items   |        |
| Profit before Extraordinary Items and Tax                 | 1800   |
| Extraordinary Items                                       |        |
| Profit Before Tax   | 1800   |

|                              |      |
|------------------------------|------|
| Tax Expense                  | 600  |
| Profit (Loss) for the period | 1200 |
| <b>Dividends</b>             | 400  |

Prepare the cash flow statement for the year ending 31-3-20X1

## **CHAPTER 4**

### **1. Balance Sheet of Deccan Ltd. as at March 31, 20X1 is as follows:**

*Rs. in million*

| <b>Equity And Liabilities</b>   | <b>20X1</b> | <b>20X0</b> |
|---------------------------------|-------------|-------------|
| Shareholders' Funds             | 2150        | 1400        |
| Share capital (Par value Rs.10) | 550         | 550         |
| Reserves and surplus            | 1600        | 850         |
| Non-current Liabilities         | 1008        | 971         |
| Long-term borrowings            | 800         | 780         |
| Deferred tax liabilities (net)  | 88          | 72          |
| Long-term provisions            | 120         | 119         |
| Current Liabilities             | 824         | 743         |
| Short-term borrowings           | 450         | 400         |
| Trade payables                  | 320         | 300         |
| Other current liabilities       | 38          | 30          |
| Short-term provisions           | 16          | 13          |
|                                 | 3982        | 3114        |
| <b>Assets</b>                   |             |             |
| Non-current Assets              | 1752        | 1228        |
| Fixed assets                    | 1600        | 1100        |
| Non-current investments         | 120         | 100         |
| Long-term loans and advances    | 32          | 28          |
| Current Assets                  | 2230        | 1886        |
| Current investments             | 82          | 78          |
| Inventories                     | 1200        | 960         |

|  |                 |      |
|--|-----------------|------|
| Trade receivables  | 893             | 802  |
| Cash and cash equivalents  | 14              | 12   |
| Short-term loans and advances                                      | 41              | 34   |
|  | 3982            | 3114 |
|  |                 |      |
| <b>Statement of Profit and Loss for Year Ending March 31, 20X1</b> |                 |      |
|  | (Rs.in million) |      |
|  |                 |      |
|  | Current Period  |      |
|  |                 |      |
| Revenues from Operations   | 3800            |      |
| Other Income   | 70              |      |
| Total Revenues   | 3870            |      |
| Expenses   |                 |      |
| Material expenses  | 1500            |      |
| Employee benefit expenses  | 800             |      |
| Finance costs  | 180             |      |
| Depreciation and amortisation expenses                             | 80              |      |
| Other expenses   | 70              |      |
| Total expenses   | 2630            |      |
| Profit before Exceptional & Extraordinary Items and Tax            | 1240            |      |
| Exceptional Items  |                 |      |
| Profit before Extraordinary Items and Tax                          | 1240            |      |
| Extraordinary Items  |                 |      |
| Profit Before Tax  | 1240            |      |

|                              |     |  |
|------------------------------|-----|--|
| Tax Expense                  | 410 |  |
| Profit (Loss) for the period | 830 |  |
| <b>Dividends</b>             | 80  |  |

@ Consists entirely of interest income.

Required:

Calculate the following ratios for the year 20X1

(1)current ratio, (2)acid-test ratio,(3) cash ratio,(4) debt-equity ratio, (5) interest coverage ratio, (6) fixed charges coverage ratio ( assume a tax rate of 30 percent), (7) inventory turnover ratio (assume the cost of goods sold to be Rs.1800 million), (8) debtor turnover ratio, (9) average collection period, (10) total assets turnover, (11) gross profit margin, (12) net profit margin, (13) return on assets, (14) earning power, and (15) return on equity

2. The balance sheets of Saroj & Company are given below:

*Rs in million*

|                                 | 20X2 | 20X1 |
|---------------------------------|------|------|
| <b>Equity And Liabilities</b>   |      |      |
| Shareholders' funds             | 910  | 818  |
| Share capital (Par value Rs.10) | 330  | 330  |
| Reserves and surplus            | 580  | 488  |
| Non-current Liabilities         | 551  | 488  |
| Long-term borrowings            | 420  | 380  |
| Deferred tax liabilities (net)  | 60   | 50   |
| Long-term provisions            | 71   | 58   |
| Current Liabilities             | 332  | 298  |
| Short-term borrowings           | 220  | 200  |
| Trade payables                  | 80   | 74   |
| Other current liabilities       | 22   | 16   |



|                               |      |      |
|-------------------------------|------|------|
| Short-term provisions         | 10   | 8    |
|                               | 1793 | 1604 |
| <b>Assets</b>                 |      |      |
| Non-current Assets            | 725  | 660  |
| Fixed assets                  | 620  | 566  |
| Non-current investments       | 85   | 78   |
| Long-term loans and advances  | 20   | 16   |
| Current Assets                | 1068 | 944  |
| Current investments           | 47   | 44   |
| Inventories                   | 550  | 470  |
| Trade receivables             | 420  | 390  |
| Cash and cash equivalents     | 13   | 12   |
| Short-term loans and advances | 38   | 28   |
|                               | 1793 | 1604 |

**Statement of Profit and Loss for Year 20X1-20X2**

*Rs. in million*

|  |      |
|--|------|
|  | 20X2 |
| Revenues from Operations               | 1200 |
| Other Income                           | 40   |
| Total Revenues                         | 1240 |
| Expenses                               |      |
| Material expenses                      | 440  |
| Employee benefit expenses              | 320  |
| Finance costs                          | 70   |
| Depreciation and amortisation expenses | 40   |
| Other expenses                         | 28   |

|   |     |
|---|-----|
| Total expenses  | 898 |
| Profit before exceptional and extraordinary Items and tax | 342 |
| Exceptional Items   |     |
| Profit before Extraordinary Items and Tax                 | 342 |
| Extraordinary Items                                       |     |
| Profit Before Tax   | 342 |
| Tax Expense   | 106 |
| Profit (Loss) for the period                              | 236 |
| <b>Dividends</b>  | 80  |
|   |     |
|   |     |

@ Consists entirely of interest income.

Required:

Calculate the following ratios for the year 20X1

(1)current ratio, (2)acid-test ratio,(3) cash ratio,(4) debt-equity ratio, (5) interest coverage ratio, (6) fixed charges coverage ratio ( assume a tax rate of 31 per cent and loan repayment per year of 40), (7) inventory turnover ratio (assume the cost of goods sold to be Rs.600 million), (8) debtor turnover ratio, (9) average collection period, (10) total assets turnover, (11) gross profit margin, (12) net profit margin, (13) return on assets, (14) earning power, and (15) return on equity

3. Sania Company's net profit margin is 7 per cent, total assets turnover ratio is 1.5 times, debt to total assets ratio is 0.4. What is the return on equity for Sania?
4. The following information is given for Alpha Corporation

|                       |      |
|-----------------------|------|
| Sales(total revenues) | 8000 |
| Current ratio         | 1.8  |
| Acid test ratio       | 1.1  |
| Current liabilities   | 900  |

What is the inventory turnover ratio?

5. The following information is given for Diggy Corporation.

|                          |        |
|--------------------------|--------|
| Sales (total revenues)   | 10,000 |
| Current ratio            | 1.7    |
| Inventory turnover ratio | 4      |
| Acid test ratio          | 1.2    |

What is the level of current liabilities?

6. Mithas Inc. has profit before tax of Rs.50 million. If the company's times interest earned ratio is 6, what is the total interest charge?
7. Easy Inc. has profit before tax of Rs.180 million. If the company's times interest earned ratio is 10, what is the total interest charge?
8. The following data applies to a firm:

|                       |              |
|-----------------------|--------------|
| Interest charges      | Rs.100,000   |
| Sales(total revenues) | Rs.5,000,000 |
| Tax rate              | 30 per cent  |
| Net profit margin     | 7 per cent   |

What is the firm's times interest earned ratio?

9. A firm's current assets and current liabilities are Rs.56,000 and Rs. 38,000 respectively. How much additional funds can it borrow from banks for short-term, without reducing the current ratio below 1.25?
10. Adarsh's current assets and current liabilities are Rs. 900,000 and Rs. 600,000 respectively. How much additional funds can it borrow from banks for short term, without reducing the current ratio below 1.3?
11. A firm has total annual sales (i.e. revenues from operations) (all credit) of Rs. 5,000,000 and accounts receivable of Rs. 500,000. How rapidly (in how many days) must accounts receivable be collected if management wants to reduce the accounts receivable to Rs. 300,000?
12. A firm has total annual sales (i.e. revenues from operations) (all credit) of Rs. 2,400,000 and accounts receivable of Rs. 800,000. How rapidly (in how many days) must accounts receivable be collected if management wants to reduce the accounts receivable to Rs. 600,000?
13. The financial ratios of a firm are as follows.

|                     |   |      |
|---------------------|---|------|
| Current ratio       | = | 1.5  |
| Acid-test ratio     | = | 1.20 |
| Current liabilities | = | 8000 |

$$\text{Inventory turnover ratio} = 12$$

What is the sales(i.e. revenues from operations) of the firm?

14. The financial ratios of a firm are as follows.

$$\text{Current ratio} = 1.8$$

$$\text{Acid-test ratio} = 1$$

$$\text{Current liabilities} = 10,000$$

$$\text{Inventory turnover ratio} = 3$$

What is the sales(i.e. revenues from operations) of the firm?

15. Complete the balance sheet and sales data (fill in the blanks) using the following financial data:

$$\text{Debt/equity ratio} = 0.5$$

$$\text{Acid-test ratio} = 1.2$$

$$\text{Total assets turnover ratio} = 2$$

$$\text{Average collection period} = 30 \text{ days}$$

Cost of goods as a percentage

$$\text{of total revenues} = 70 \text{ per cent}$$

$$\text{Inventory turnover ratio} = 8$$

#### **Balance Sheet**

|                           |        |
|---------------------------|--------|
| Equity capital            | 80,000 |
| Retained earnings         | 60,000 |
| Debt                      | ....   |
|                           | ....   |
| Plant and equipment       | ....   |
| Inventories               | ....   |
| Trade receivables         | ....   |
| Cash and cash equivalents | ....   |
| Revenue from operations   | ....   |
| Other income nil          | ....   |

16. Complete the balance sheet and sales data (fill in the blanks) using the following financial data:

Debt/equity ratio = 1.2

Acid-test ratio = 0.75

Total assets turnover ratio = 0.9

Average collection period = 65 days

Cost of goods as a percentage

of total revenues = 75 per cent

Inventory turnover ratio = 4

### Balance Sheet

|                           |        |
|---------------------------|--------|
| Equity capital            | 20,000 |
| Retained earnings         | 10,000 |
| Debt                      | ....   |
|                           | ....   |
| Plant and equipment       | ....   |
| Inventories               | ....   |
| Trade receivables         | ....   |
| Cash and cash equivalents | ....   |
| Revenue from operations   | ....   |
| Other income nil          | ....   |

17. The Balance sheets and Profit and Loss accounts of Ambani Limited are given below

Prepare the common size and common base financial statements.

Balance Sheet of Ambani Limited as on March 31, 20X1

(Rs.in million)

| EQUITY AND LIABILITIES | <u>20X1</u> | <u>20X0</u> |
|------------------------|-------------|-------------|
|                        |             |             |
|                        |             |             |
| • Shareholders' funds  | 767         | 710         |

|                                   |      |      |
|-----------------------------------|------|------|
| · Share capital (Par value Rs.10) | 250  | 250  |
| · Reserves and surplus            | 517  | 460  |
| · Non-current Liabilities         | 450  | 385  |
| · Long-term borrowings            | 350  | 310  |
| · Deferred tax liabilities (net)  | 50   | 36   |
| · Long-term provisions            | 50   | 39   |
| · Current Liabilities             | 256  | 186  |
| · Short-term borrowings           | 160  | 120  |
| · Trade payables                  | 70   | 45   |
| · Other current liabilities       | 18   | 15   |
| · Short-term provisions           | 8    | 6    |
|                                   | 1473 | 1281 |
| ASSETS                            |      |      |
| · Non-current assets              | 526  | 450  |
| · Fixed assets                    | 440  | 380  |
| · Non-current investments         | 70   | 56   |
| · Long-term loans and advances    | 16   | 14   |
| · Current assets                  | 947  | 831  |
| · Current investments             | 45   | 43   |
| · Inventories                     | 450  | 410  |
| · Trade receivables               | 407  | 340  |
| · Cash and cash equivalents       | 10   | 8    |
| · Short-term loans and advances   | 35   | 30   |
|                                   | 1473 | 1281 |

**Statement of Profit and Loss for Ambani Limited for Year Ending March 31, 20X1**

*(Rs.in million)*

|   | 20X1 | 20X0 |
|---|------|------|
| • Revenues from Operations                                | 850  | 770  |
| • Other Income  | 20   | 12   |
| • Total Revenues  | 870  | 782  |
| • Expenses  |      |      |
| • Material expenses                                       | 360  | 320  |
| • Employee benefit expenses                               | 240  | 210  |
| • Finance costs   | 50   | 49   |
| • Depreciation and amortisation expenses                  | 35   | 32   |
| • Other expenses  | 22   | 22   |
| • Total Expenses  | 707  | 633  |
| Profit before Exceptional and Extraordinary Items and Tax |      |      |
|   | 163  | 149  |
| • Exceptional Items                                       |      |      |
| • Profit before Extraordinary Items and Tax               | 163  | 149  |
| • Extraordinary Items                                     |      |      |
| • Profit Before Tax                                       | 163  | 149  |
| • Tax Expense   | 54   | 52   |

**Balance Sheet of Murthi Limited as on March 31, 20X1**

*(Rs.in million)*

| <b>Equity And Liabilities</b>   | <b><u>20X1</u></b> | <b><u>20X0</u></b> |
|---------------------------------|--------------------|--------------------|
|                                 |                    |                    |
|                                 |                    |                    |
| Shareholders' funds             | 910                | 818                |
| Share capital (Par value Rs.10) | 330                | 330                |
| Reserves and surplus            | 580                | 488                |
| Non-current liabilities         | 551                | 488                |
| Long-term borrowings            | 420                | 380                |
| Deferred tax liabilities (net)  | 60                 | 50                 |
| Long-term provisions            | 71                 | 58                 |
| Current Liabilities             | 332                | 298                |
| Short-term borrowings           | 220                | 200                |
| Trade payables                  | 80                 | 74                 |
| Other current liabilities       | 22                 | 16                 |
| Short-term provisions           | 10                 | 8                  |
|                                 | 1793               | 1604               |
| <b>Assets</b>                   |                    |                    |
| Non-current Assets              | 725                | 660                |
| Fixed assets                    | 620                | 566                |
| Non-current investments         | 85                 | 78                 |
| Long-term loans and advances    | 20                 | 16                 |
| Current Assets                  | 1068               | 944                |
| Current investments             | 47                 | 44                 |



|   |                        |      |
|---|------------------------|------|
| Inventories   | 550                    | 470  |
| Trade receivables   | 420                    | 390  |
| Cash and cash equivalents   | 13                     | 12   |
| Short-term loans and advances   | 38                     | 28   |
|   | 1793                   | 1604 |
|   |                        |      |
| <b>Statement of Profit and Loss for Murthi Limited for Year Ending March 31, 20X1</b> |                        |      |
|   | <i>(Rs.in million)</i> |      |
|   |                        |      |
|   | 20X1                   | 20X0 |
|   |                        |      |
| Revenues from Operations  | 1200                   | 1050 |
| Other Income  | 40                     | 32   |
| Total Revenues  | 1240                   | 1082 |
| Expenses  |                        |      |
| Material expenses   | 440                    | 400  |
| Employee benefit expenses   | 320                    | 310  |
| Finance costs   | 70                     | 66   |
| Depreciation and amortisation expenses  | 40                     | 35   |
| Other expenses  | 28                     | 24   |
| Total expenses  | 898                    | 835  |
|   |                        |      |
| Profit before exceptional and extraordinary Items and tax                             | 342                    | 247  |
| Exceptional Items   |                        |      |
| Profit before Extraordinary Items and Tax   | 342                    | 247  |

|                              |     |     |
|------------------------------|-----|-----|
| Extraordinary Items          |     |     |
| Profit Before Tax            | 342 | 247 |
| Tax Expense                  | 106 | 51  |
| Profit (Loss) for the period | 236 | 196 |

Chapter 5  
**FINANCIAL PLANNING AND FORECASTING**

1. The following information is available for a company:  $A^*/S = 0.8$ ,  $\Delta S = \text{Rs. } 400 \text{ million}$ ,  $L^*/S = 0.30$ ,  $m = 0.20$ ,  $S_1 = \text{Rs. } 1000 \text{ million}$  and  $r = 0.7$ . What are the additional funds needed for the forthcoming year?
2. The following information is available for a company.

|                   |   |     |
|-------------------|---|-----|
| Net profit margin | : | 8 % |
| Asset turnover    | : | 6   |
| Equity multiplier | : | 1.8 |

If the company wants to have a sustainable growth rate of 30 % what should be its retention ratio?

3. The following information is available for a company:  $A^*/S = 0.7$ ,  $\Delta S = \text{Rs. } 300 \text{ million}$ ,  $L^*/S = 0.20$ ,  $m = 0.15$ ,  $S_1 = \text{Rs. } 800 \text{ million}$  and  $r = 0.8$ . What are the additional funds needed for the forthcoming year?
4. The following information is available for a company.

|                   |   |      |
|-------------------|---|------|
| Net profit margin | : | 10 % |
| Asset turnover    | : | 4    |
| Equity multiplier | : | 1.5  |

If the company wants to have a sustainable growth rate of 35 % what should be its retention ratio?

5. The following information is available for a company:  $A^*/S = 0.6$ ,  $\Delta S = \text{Rs. } 200 \text{ million}$ ,  $L^*/S = 0.30$ ,  $m = 0.12$ ,  $S_1 = \text{Rs. } 180 \text{ million}$  and  $r = 0.7$ . What is the additional funds needed for the forthcoming year?
6. The following information is available for a company.

|                   |   |      |
|-------------------|---|------|
| Net profit margin | : | 15 % |
| Asset turnover    | : | 2.3  |
| Equity multiplier | : | 1.2  |

If the company wants to have a sustainable growth rate of 25 % what should be its retention ratio?

7. The income statements and balance sheets of Advani Corporation for year 1 and 2 are as follows:

Income statements:

|  | Year 1 | Year 2 |
|--|--------|--------|
| Revenues from Operations                         | 1000   | 1200   |
| Expenses   |        |        |
| Material expenses                                | 500    | 600    |
| Employee benefit expenses                        | 240    | 260    |
| Finance costs                                    | 50     | 55     |
| Depreciation and amortisation expenses           | 40     | 48     |
| Other expenses                                   | 50     | 60     |
| Total expenses                                   | 880    | 1023   |
| Profit before exceptional items and other income | 120    | 177    |
| Exceptional Items                                | 8      | 10     |
| Profit before Extraordinary Items and Tax        | 128    | 187    |
| Extraordinary Items                              |        |        |
| Profit Before Tax                                | 128    | 187    |
| Tax Expense                                      | 40     | 60     |
| Profit (Loss) for the period                     | 88     | 127    |
| Dividends  | 20     | 20     |
| Retained earnings                                | 68     | 107    |

#### Balance Sheets

|                                 | Year 1 | Year 2 |
|---------------------------------|--------|--------|
| Share capital (Par value Rs.10) | 200    | 200    |
| Reserves and surplus            | 120    | 227    |

|                                |     |     |
|--------------------------------|-----|-----|
| <b>Non-current Liabilities</b> |     |     |
| Long-term borrowings           | 80  | 85  |
| Deferred tax liabilities (net) | 10  | 10  |
| Long-term provisions           | 10  | 12  |
| <b>Current Liabilities</b>     |     |     |
| Short-term borrowings          | 60  | 60  |
| Trade payables                 | 80  | 88  |
| Other current liabilities      | 10  | 12  |
| Short-term provisions          | 30  | 36  |
| External funds requirement     |     |     |
|                                | 600 | 730 |
| <b>Assets</b>                  |     |     |
| Non-current Assets             |     |     |
| Fixed assets                   | 280 | 330 |
| Non-current investments        | 8   | 9   |
| Long-term loans and advances   | 21  | 26  |
| Current Assets                 |     |     |
| Current investments            | 4   | 6   |
| Inventories                    | 179 | 220 |
| Trade receivables              | 90  | 114 |
| Cash and cash equivalents      | 4   | 7   |
| Short-term loans and advances  | 14  | 18  |
|                                | 600 | 730 |

Use the following budgeted figures and assumptions for year 3 and estimate the amount of external financing needed for year 3

Revenue from operations: budgeted      1500  
 Depreciation and amortisation expenses: budgeted   55  
 Dividends: budgeted                              30

Fixed assets: budgeted 460

Non-current investments: budgeted 20

Current investments: budgeted 15

Income tax rate would be at 30 per cent and there would be no changes in the levels of share capital and long-term loans and advances given. There would be no income other than from operations. For other figures, wherever needed, use the per cent of sales method.

Chapter 6  
**TIME VALUE OF MONEY**

1. A company borrows Rs. 10,000,000 at an interest rate of 10 % per year and the loan with interest is to be repaid in 5 equal instalments payable at the end of each of the next 5 years.
  - (i) What is the annual instalment payable?
  - (ii) What proportion of the instalment payable at the end of year 2, represents the principal repayment portion?
2. None of the aboveA firm borrows Rs. 8,000,000 at an interest rate of 12 % per year and the loan with interest is to be repaid in 5 equal instalments payable at the end of each of the next 5 years.
  - (i) What is the annual instalment payable?
  - (ii) What proportion of the instalment payable at the end of year 2, represents the principal repayment portion?
3. A firm borrows Rs. 10,000,000 at an interest rate of 10 % per year and the loan with interest is to be repaid in 8 equal instalments payable at the end of each of the next 8 years.
  - (i) What is the annual instalment payable?
  - (ii) What proportion of the instalment payable at the end of year 2, represents the principal repayment portion?
4. As an investment advisor, you have been approached by a client called Vishal for advice on some financial matters. Vishal is 40 years old and has Rs. 1,000,000 in bank. He plans to work for 20 years more and retire at the age of 60. His present salary is Rs. 1,800,000 per year. He expects his salary to increase at the rate of 10 percent per year until his retirement.

Vishal has decided to invest his bank balance and future savings in a balanced mutual fund scheme which he believes will provide a return of 12 percent per year.

Vishal seeks your help in answering several questions given below. In answering these questions, ignore the tax factor.

- (i) Once he retires at the age of 60, he would like to withdraw Rs. 2,000,000 per year for his consumption needs for the following 15 years (his life expectancy is 75 years). Each annual withdrawal will be made at the beginning of the year. How much should be the value of his investments when he reaches the age of 60, to meet his retirement need?

- (ii) How much should Vishal save each year for the next 20 years to be able to withdraw Rs. 2,000,000 per year from the beginning of the 61<sup>st</sup> year for a period of 15 years? Assume that the savings will occur at the end of each year. Remember that Vishal already has some bank balance. Give the answer correct to the nearest hundred rupees.
  - (iii) Suppose Vishal wants to give a donation of Rs. 300,000 per year for the last 4 years of his life to a charitable cause. Each donation would be made at the end of the year. Further, he wants to bequeath Rs. 6,000,000 to his daughter at the end of his life. How much should he have in his investment account when he reaches the age of 60 to meet his need for donation and bequeathing? Give the answer correct to the nearest hundred rupees.
  - (iv) Vishal wants to find out the present value of his lifetime salary income. For the sake of simplicity, assume that his current salary of Rs. 1,800,000 will be paid exactly a year from now, and his salary is paid annually. What is the present value of his life time salary income, if the discount rate applicable to the same is 9 percent? Remember that Vishal expects his salary to increase at the rate of 10 percent per year until retirement. Give the answer correct to the nearest hundred rupees.
5. As an investment advisor, you have been approached by a client called Nitin for advice on some financial matters. Nitin is 30 years old and has Rs.1,000,000 in bank. He plans to work for 25 years more and retire at the age of 55. His present salary is Rs.1,200,000 per year. He expects his salary to increase at the rate of 10 percent per year until his retirement.

Nitin has decided to invest his bank balance and future savings in a balanced mutual fund scheme which he believes will provide a return of 10 percent per year.

Nitin seeks your help in answering several questions given below. In answering these questions, ignore the tax factor.

- (i) Once he retires at the age of 55, he would like to withdraw Rs. 3,000,000 per year for his consumption needs for the following 20 years (his life expectancy is 75 years). Each annual withdrawal will be made at the beginning of the year. How much should be the value of his investments when he reaches the age of 55, to meet his retirement need?
- (ii) How much should Nitin save each year for the next 25 years to be able to withdraw Rs.3,000,000 per year from the beginning of the 26<sup>th</sup> year for a period of 20 years? Assume that the savings will occur at the end of each year. Remember that he already has some bank balance
- (iii) Suppose Nitin wants to donate Rs.800,000 per year in the last 5 years of his life to a charitable cause. Each donation would be made at the beginning of the year. Further, he wants to bequeath Rs.9,000,000 to his son at the end of his life. How much should he have in his investment account when he reaches the age of 55 to meet this need for donating



and bequeathing? Approximate it to the nearest '000.

- (iv) Nitin wants to find out the present value of his lifetime salary income. For the sake of simplicity, assume that his current salary of Rs. 1,200,000 will be paid exactly a year from now, and his salary is paid annually. What is the present value of his life time salary income, if the discount rate applicable to the same is 13 percent? Remember that Nitin expects his salary to increase at the rate of 10 percent per year until retirement.

6. As an investment advisor, you have been approached by a client called Sathya for advice on some financial matters. Sathya is 40 years old and has Rs.3,000,000 in bank. He plans to work for 20 years more and retire at the age of 60. His present salary is Rs.1,800,000 per year. He expects his salary to increase at the rate of 15 percent per year until his retirement.

Sathya has decided to invest his bank balance and future savings in a balanced mutual fund scheme which he believes will provide a return of 12 percent per year.

Sathya seeks your help in answering several questions given below. In answering these questions, ignore the tax factor.

- (i) Once he retires at the age of 60, he would like to withdraw Rs. 5,000,000 per year for his consumption needs for the following 20 years (his life expectancy is 80 years). Each annual withdrawal will be made at the beginning of the year. How much should be the value of his investments when he reaches the age of 60, to meet his retirement need?
- (ii) How much should Sathya save each year for the next 20 years to be able to withdraw Rs.5,000,000 per year from the beginning of the 21<sup>st</sup> year for a period of 20 years? Assume that the savings will occur at the end of each year. Remember that he already has some bank balance. Give the answer to the nearest '000.
- (iii) Suppose Sathya wants to donate Rs.1,000,000 per year in the last 5 years of his life to a charitable cause. Each donation would be made at the beginning of the year. Further, he wants to bequeath Rs.10,000,000 to his son at the end of his life. How much should he have in his investment account when he reaches the age of 60 to meet this need for donating and bequeathing? Approximate it to the nearest '000.
- (iv) Sathya wants to find out the present value of his lifetime salary income. For the sake of simplicity, assume that his current salary of Rs. 1,800,000 will be paid exactly a year from now, and his salary is paid annually. What is the present value of his life time salary income, if the discount rate applicable to the same is 10 percent? Remember that Sathya expects his salary to increase at the rate of 15 percent per year until retirement.

Chapter 7  
**VALUATION OF BONDS AND STOCKS**

1. A Rs. 1000 par value bond, bearing a coupon rate of 12 % payable semi-annually will mature after 5 years.
  - (i) If the required rate of return on the bond is 16 % p.a., what is its value?
  - (ii) If the bond is currently selling at Rs. 965, what is the approximate YTM per annum?
2. A Rs. 1000 par value bond, bearing a coupon rate of 10 % payable semi-annually will mature after 4 years.
  - (i) If the required rate of return on the bond is 8 % p.a., what is its value?
  - (ii) If the bond is currently selling at Rs. 1100, what is the approximate YTM per annum?
3. A Rs.100 par bond carrying a coupon rate of 10 percent and maturing after 4 years is selling for Rs. 102.
  - (i) What is the approximate YTM?
  - (ii) What will be the realised yield to maturity if the reinvestment rate is 8 percent?
4. A Rs. 1000 par value bond, bearing a coupon rate of 16 % payable semi-annually will mature after 3 years.
  - (i) If the required rate of return on the bond is 12 % p.a., what is its value?
  - (ii) If the bond is currently selling at Rs. 1050, what is the approximate YTM per annum?
5. A Rs.1,000 par bond carrying a coupon rate of 8 percent and maturing after 8 years is selling for Rs. 1,100.

What is the approximate YTM?

6. The risk-free rate is 6 percent and the expected return on the market portfolio is 15%. The beta of a stock is 1.8. Its dividends and earnings are expected to grow at a constant rate of 10 % per annum forever. The dividend paid just now is Rs.10.00. What should be the intrinsic value per share of the stock?
7. The following information is available for a bond.

|                          |                             |
|--------------------------|-----------------------------|
| • Face Value             | Rs. 100                     |
| • Coupon (interest rate) | 12 percent payable annually |
| • Term to maturity       | 8 years                     |
| • Redemption value       | Rs. 100                     |

- Current market price Rs. 108

- (i) What is the YTM of the bond? Use the approximate formula.
  - (ii) What is the duration of the bond? Use the approximate formula for calculating the yield to maturity.
  - (iii) If the yield on the bond decreases by 50 basis points, what will be the approximate change in the bond price?
8. The equity stock of a firm is currently selling for Rs. 200 per share. The expected dividend a year from now is Rs. 15.00. The investors' required rate of return on the stock is 25%. If the constant growth model applies to the firm, what is the expected growth rate?
9. The current dividend on an equity share of Max Limited is Rs. 6.00 on an earnings per share of Rs. 20.00.
  - (i) Assume that the dividend per share will grow at the rate of 16 percent per year for the next 8 years. Thereafter, the growth rate is expected to fall and stabilise at 9 percent. Investors require a return of 13 percent from Max's equity shares. What is the intrinsic value of Max's equity share?
  - (ii) Assume that the growth rate of 16 percent will decline linearly over an 8 year period and then stabilise at 9 percent. What is the intrinsic value of Max's share if the investors' required rate of return is 13 percent?
10. The current dividend on an equity share of Zipro Limited is Rs.12.00 on an earnings per share of Rs. 60.00.
  - (i) Assume that the dividend per share will grow at the rate of 25 percent per year for the next 6 years. Thereafter, the growth rate is expected to fall and stabilise at 15 percent. Investors require a return of 18 percent from Zipro's equity shares. What is the intrinsic value of Zipro's equity share?
  - (ii) Assume that the growth rate of 25 percent will decline linearly over a six year period and then stabilise at 15 percent. What is the intrinsic value of Omega's share if the investors' required rate of return is 18 percent?
  - (iii) Assume that the dividend is expected to grow at a rate of 16 percent annually forever from now on and investors require a return of 18 percent from Zipro's equity shares. What will be the retrospective price-earnings ratio ( $P_0/E_0$ ) for Zipro?
11. The equity stock of a firm is currently selling for Rs. 200 per share. The expected dividend a year from now is Rs. 15.00. The investors' required rate of return on the stock is 25%. If the constant growth model applies to the firm, what is the expected growth rate?
12. The equity stock of Rajni Ltd. is currently selling for Rs. 280 per share. The expected dividend a year from now is Rs. 20.00. The investors' required rate of return on the stock is 25%. If the constant growth model applies to Rajni Ltd. what is the expected growth rate?

## Chapter 8

### **RISK AND RETURN**

1. The probability distribution of the rate of return on the equity shares of Levers Limited is as follows:

| <i>Rate of Return</i> | <i>Probability</i> |
|-----------------------|--------------------|
| 20 %                  | 0.7                |
| 50 %                  | 0.1                |
| 30 %                  | 0.2                |

- (i) What is the expected rate of return?  
(ii) What is the standard deviation of the return?

2. The probability distribution of the rate of return on a company's stock is as follows:

| <i>Rate of Return</i> | <i>Probability</i> |
|-----------------------|--------------------|
| 10 %                  | 0.6                |
| 15 %                  | 0.2                |
| 20 %                  | 0.2                |

- (i) What is the expected rate of return?  
(ii) What is the standard deviation of the return?

3. The probability distribution of the rate of return on a company's stock is as follows:

| <i>Rate of Return</i> | <i>Probability</i> |
|-----------------------|--------------------|
| 20 %                  | 0.3                |
| 30 %                  | 0.3                |
| 40 %                  | 0.4                |

- (i) What is the expected rate of return?  
(ii) What is the standard deviation of the return?

## Chapter 9

# RISK AND RETURN: PORTFOLIO THEORY AND ASSET PRICING MODELS

1. A portfolio consists of two securities 1 and 2. The following information is available:  $w_1 = 0.4$ ,  $w_2 = 0.6$ ,  $\sigma_1 = 0.3$ ,  $\sigma_2 = 0.4$  and  $\rho_{12} = 0.7$ . What is the standard deviation of portfolio return?
2. A portfolio consists of two securities X and Y. The following information is available:  $w_1 = 0.8$ ,  $w_2 = 0.2$ ,  $\sigma_1 = 0.4$ ,  $\sigma_2 = 0.8$  and  $\rho_{12} = 0.60$ . What is the standard deviation of portfolio return?
3. A portfolio consists of two securities L and M. The following information is available:  $w_1 = 0.3$ ,  $w_2 = 0.7$ ,  $\sigma_1 = 0.5$ ,  $\sigma_2 = 0.2$  and  $\rho_{12} = 0.60$ . What is the standard deviation of portfolio return?
4. The risk-free rate is 9 percent and the expected return on the market portfolio is 12%. The beta of stock Premier Ltd. is 1.2. Its dividends and earnings are expected to grow at a constant rate of 8% per annum forever. The dividend paid just now is Rs. 15.00. What should be the intrinsic value per share of Premier stock?
5. After investing in mutual funds for nearly a decade, Dinesh Rao, a young software engineer was brimming with confidence on his abilities on making the right investment choices. He thought the time had come to venture directly into the exciting field of equities. So very recently he did some own research and invested Rs. 4 million in Amol Sugars, and Rs. 3 million each in Basera Realtors and Creative Systems. Unfortunately for him the markets decided to take a nap soon thereafter and Dinesh became restless. He has called on you, his friend and a promising financial consultant, for answers to the following doubts.
  - (a) What is the expected return and risk (standard deviation) of the portfolio?
  - (b) What is the scope for appreciation in market price of the three stocks - are they overvalued or undervalued?

You have already been tracking two of the stocks, viz. Amol Sugars and Basera Realtors -their betas being 1.8 and 2.3 respectively.

Further, you have obtained the following historical data on the returns of Creative Systems.

| Period | Market return (%) | Return on<br>Creative Systems (%) |
|--------|-------------------|-----------------------------------|
| -----  | -----             | -----                             |
| 1      | 12                | 18                                |
| 2      | 10                | 20                                |
| 3      | (5)               | (12)                              |
| 4      | (2)               | 3                                 |
| 5      | 12                | 22                                |
| 6      | 15                | 30                                |

On the future returns of the three stocks, you are able to obtain the following forecast from a reputed firm of portfolio managers.

| State of<br>the<br>Economy | Probability | Treasury<br>Bills | Amol<br>Sugars(A) | Returns (in percentage)   |                            |               |
|----------------------------|-------------|-------------------|-------------------|---------------------------|----------------------------|---------------|
|                            |             |                   |                   | Basera<br>Realtors<br>(B) | Creative<br>Systems<br>(C) | Sensex<br>(M) |
| Recession                  | 0.2         | 8                 | -2                | - 5                       | - 4                        | - 2           |
| Normal                     | 0.2         | 8                 | 15                | 18                        | 18                         | 14            |
| Boom                       | 0.6         | 8                 | 22                | 26                        | 28                         | 18            |

**Required:**

Prepare your detailed note answering the questions.

- The risk-free rate is 8 percent and the expected return on the market portfolio is 14%. The beta of a stock is 1.1. Its dividends and earnings are expected to grow at a constant rate of 12 % per annum forever. The dividend paid just now is Rs.15.00. What should be the intrinsic value per share of the stock?

Chapter 10  
**OPTIONS AND THEIR VALUATION**

1. An equity share is currently selling for Rs. 180. In a year's time, it can rise by 10 percent or fall by 15 percent. The exercise price of a call option on this share is Rs. 190.
  - (i) What is the value of the call option if the risk-free rate is 8 percent? Use the option-equivalent method.
  - (ii) What is the value of the call option if the risk-free rate is 8 percent? Use the risk-neutral method.
2. An equity share is currently selling for Rs. 800. In a year's time, it can rise by 15 percent or fall by 20 percent. The exercise price of a call option on this share is Rs. 820.
  - (i) What is the value of the call option if the risk-free rate is 6 percent? Use the option-equivalent method.
  - (ii) What is the value of the call option if the risk-free rate is 8 percent? Use the risk-neutral method.
3. An equity share is currently selling for Rs. 100. In a year's time, it can rise by 20 percent or fall by 10 percent. The exercise price of a call option on this share is Rs. 105.
  - (i) What is the value of the call option if the risk-free rate is 7 percent? Use the option-equivalent method.
  - (ii) Calculate the value of the call option using the risk-neutral method.
4. Binomial Model An equity share is currently selling for Rs. 40. In a year's time, it can rise by 25 percent or fall by 15 percent. The exercise price of a call option on this share is Rs. 42.
  - (i) What is the value of the call option if the risk-free rate is 5 percent? Use the option-equivalent method.
  - (ii) Calculate the value of the call option using the risk-neutral method.
5. An equity share is currently selling for Rs. 560. In a year's time, it can rise by 30 percent or fall by 20 percent. The exercise price of a call option on this share is Rs. 600.
  - (i) What is the value of the call option if the risk-free rate is 8 percent? Use the option-equivalent method.
  - (ii) What is the value of the call option if the risk-free rate is 8 percent? Use the risk-neutral method.
6. Consider the following data for a certain share

- Price of the share now =  $S_0$  = Rs. 430
- Exercise price =  $E$  = Rs. 450
- Standard deviation of continuously compounded annual return =  $\sigma$  = 0.4
- Expiration period of the call option = 3 months
- Risk-free interest rate = 8 percent

What is the value of the call option? Use the normal distribution table given along this booklet and resort to linear interpolation.

7. Consider the following data for a certain share

- Price of the share now =  $S_0$  = Rs. 50
- Exercise price =  $E$  = Rs. 54
- Standard deviation of continuously compounded annual return =  $\sigma$  = 0.2
- Expiration period of the call option = 6 months
- Risk-free interest rate = 5 percent

What is the value of the call option? Use the normal distribution table given along with this booklet and resort to linear interpolation.

8. Option Valuation: Black-Scholes Model Consider the following data for a certain share

- Price of the share now =  $S_0$  = Rs. 90
- Exercise price =  $E$  = Rs. 100
- Standard deviation of continuously compounded annual return =  $\sigma$  = 0.4
- Expiration period of the call option = 6 months
- Risk-free interest rate = 8 percent

What is the value of the call option? Use the normal distribution table given along this booklet and resort to linear interpolation.

9. Consider the following data for a certain share

- Price of the share now =  $S_0$  = Rs. 300
- Exercise price =  $E$  = Rs. 320
- Standard deviation of continuously compounded annual return =  $\sigma$  = 0.3
- Expiration period of the call option = 3 months
- Risk-free interest rate = 8 percent

What is the value of the call option? Use the normal distribution table given along with this booklet and resort to linear interpolation.

10. Consider the following data for a certain share

- Price of the share now =  $S_0$  = Rs. 30
- Exercise price =  $E$  = Rs. 32
- Standard deviation of continuously compounded annual return =  $\sigma$  = 0.25
- Expiration period of the call option = 3 months



- Risk-free interest rate = 6 percent

What is the value of the call option? Use the normal distribution table given along this booklet and resort to linear interpolation.

## Chapter 11 TECHNIQUES OF CAPITAL BUDGETING

- Deepak Industries is evaluating a project with an initial investment of 1100. The expected cash inflows are as follows

| Year      | 1   | 2   | 3   | 4   |
|-----------|-----|-----|-----|-----|
| Cash flow | 200 | 500 | 600 | 250 |

The cost of capital for Deepak Industries is 15 percent.

- What is the NPV of the project?
  - What is the IRR of the project?
- Sarda Industries is evaluating a project with an initial investment of 5000. The expected cash inflows are as follows

| Year      | 1    | 2    | 3    | 4    |
|-----------|------|------|------|------|
| Cash flow | 1000 | 2000 | 2500 | 2200 |

The cost of capital for Sarda Industries is 18 percent.

- What is the NPV of the project?
  - What is the IRR of the project?
- Pushkar Limited is evaluating a project whose expected cash flows are as follows:

| <u>Year</u> | <u>Cash flow (Rs. in million)</u> |
|-------------|-----------------------------------|
| 0           | (600)                             |
| 1           | 200                               |
| 2           | 300                               |
| 3           | 220                               |
| 4           | 194                               |

The cost of capital for Pushkar Limited is 14 percent.

- What is the NPV of the project?
  - What is the IRR of the project?
- Jeevan Industries is evaluating a project whose expected cash flows are as follows

| <u>Year</u> | <u>Cash flow</u> |
|-------------|------------------|
| 0           | – 450,000        |
| 1           | 100,000          |
| 2           | 150,000          |
| 3           | 260,000          |
| 4           | 180,000          |

The cost of capital for Jeevan Industries is 15 percent.

- (i) What is the NPV of the project?
- (ii) What is the IRR of the project?

5. Bharat Limited is evaluating a project whose expected cash flows are as follows:

| <u>Year</u> | <u>Cash flow (Rs. in million)</u> |
|-------------|-----------------------------------|
| 5           | (380)                             |
| 6           | 100                               |
| 7           | 200                               |
| 8           | 150                               |
| 9           | 100                               |

The cost of capital for Bharat Limited is 15 percent.

- (i) What is the NPV of the project?
- (ii) What is the IRR of the project?

6. Vivek Limited is evaluating a project whose expected cash flows are as follows:

| <u>Year</u> | <u>Cash flow (Rs. in million)</u> |
|-------------|-----------------------------------|
| 10          | (130)                             |
| 11          | 30                                |
| 12          | 80                                |
| 13          | 60                                |
| 14          | 20                                |

The cost of capital for Vivek Limited is 16 percent.

- (i) What is the NPV of the project?
- (ii) What is the IRR of the project?

## Chapter 12

### ESTIMATION OF PROJECT CASH FLOWS

1. Minar Corporation is considering the manufacture of a new formulation to be named Liveon for which the following information has been gathered.

Liveon is expected to have a product life cycle of five years after which it will be withdrawn from the market. The sales from this product are expected to be as follows:

| Year                   | 1   | 2    | 3    | 4    | 5    |
|------------------------|-----|------|------|------|------|
| Sales (Rs. in million) | 600 | 1200 | 2000 | 1600 | 1000 |

- The capital equipment required for manufacturing Liveon costs Rs. 400 million and it will be depreciated at the rate of 25 percent per year as per the WDV method for tax purposes. The expected net salvage value after 5 years is Rs. 100 million.
- The working capital requirement for the project is expected to be 15 % of sales. Working capital level will be adjusted at the beginning of the year in relation to the sales for the year. At the end of five years, working capital is expected to be liquidated at par.
- The firm has estimated the cost of Liveon as follows:

|  |                       |
|--|-----------------------|
| Raw material cost                            | : 30 percent of sales |
| Variable manufacturing cost                  | : 20 percent of sales |
| Fixed annual operating and maintenance costs | : Rs. 30 million      |
| Variable selling expenses                    | : 25 percent of sales |

- The tax rate for the firm is 33 percent.

*Required:*

- (a) Estimate the post-tax incremental cash flows for the project to manufacture Liveon.
- (b) What is the NPV of the project if the cost of capital is 14 percent?

2. Amar Enterprises is considering the manufacture of a new health drink to be named Amrit for which the following information has been gathered.

Amrit is expected to have a product life cycle of five years after which it will be withdrawn from the market. The sales from this product are expected to be as follows:

| Year                   | 1   | 2   | 3   | 4   | 5   |
|------------------------|-----|-----|-----|-----|-----|
| Sales (Rs. in million) | 200 | 500 | 600 | 400 | 200 |

- The capital equipment required for manufacturing Amrit costs Rs. 100 million and it will be depreciated at the rate of 20 percent per year as per the WDV method for tax purposes. The expected net salvage value after 5 years is Rs. 40 million.

- The working capital requirement for the project is expected to be 20% of sales. Working capital level will be adjusted at the beginning of the year in relation to the sales for the year. At the end of five years, working capital is expected to be liquidated at par.
- The firm has estimated the cost of Amrit as follows:
 

|  |                       |
|--|-----------------------|
| Raw material cost                            | : 40 percent of sales |
| Variable manufacturing cost                  | : 15 percent of sales |
| Fixed annual operating and maintenance costs | : Rs. 10 million      |
| Variable selling expenses                    | : 25 percent of sales |
- The tax rate for the firm is 30 percent.

*Required:*

- (a) Estimate the post-tax incremental cash flows for the project to manufacture Amrit.
- (b) What is the NPV of the project if the cost of capital is 15 percent?

3. Arogya Limited is a leader in the health drinks industry. It is considering manufacture of a new health drink called Liva.

You have recently joined Arogya as a finance officer and you report to the Vice President (Finance), who coordinates the capital budgeting activity. You have been asked to develop the financials for Liva.

After discussing with marketing, technical, and other personnel, you have gathered the following information.

The Liva project has an economic life of 5 years. It would generate a revenue of Rs.300 million in year 1 which will rise by Rs. 100 million per year for the following two years. Thereafter, revenues will decline by Rs.80 million per year for the remaining two years. Operating costs (costs before depreciation, interest, and taxes) will be 40 percent of revenues. Liva is expected to erode the revenues of an existing bulk drug. Due to this erosion there will be a loss of Rs.20 million per year by way of contribution margin for 5 years. While there may be some other impacts as well, they may be ignored in the present analysis.

Liva will require an outlay of Rs.200 million in plant and machinery right in the beginning. The same will be financed by equity and term loan in the ratio 2:3. The term loan will carry an interest of 15 percent per annum and will be repayable in 3 equal annual instalments, the first instalment falling due at the end of year 3.

For tax purposes, the depreciation rate will be 20 percent as per the written down value method. The net salvage value of plant and machinery after 5 years is expected to be Rs.50 million.

The net working capital requirement will be 20 percent of revenues. Assume that the investment in net working capital will be made right in the beginning of each year and the same will be fully financed by working capital advance carrying an interest rate of 14 percent per annum. At the end of 5 years the working capital is expected to be liquidated at par. The effective tax rate is 32%

*Required*

- (a) Estimate the net cash flows relating to explicit cost funds (investor claims) over the 5-year period.
  - (b) Estimate the net cash flows relating to equity over the 5-year period.
4. Mewar Industries is planning a project involving replacement of an old machine with a new machine. The old machine bought a few years ago has a book value of Rs. 100 lakhs and it can be sold to realise a post-tax salvage value of Rs. 50 lakhs. It has a remaining life of 5 years after which its net salvage value is expected to be Rs. 20 lakhs. It is being depreciated annually at a rate of 20 percent under WDV method.

The new machine costs Rs. 200 lakhs. It is expected to fetch a net salvage value of Rs. 80 lakhs after 5 years. The depreciation rate applicable to it is 20 percent under WDV method. The incremental working capital associated with this machine is Rs. 70 lakhs and it is expected to be recovered at its book value at the end of 5 years. The new machine is expected to bring a savings of Rs. 48 lakhs annually in manufacturing costs (other than depreciation). The tax rate applicable to the firm is 33 percent.

Estimate the cash flow associated with the replacement project.

5. Baxi Limited is a leader in the bulk drug industry. It is considering manufacture of a new bulk drug called BXI-4.

You have recently joined Baxi as a finance officer and you report to Yoshimoto, Vice President (Finance), who coordinates the capital budgeting activity. You have been asked to develop the financials for BXI-4.

After discussing with marketing, technical, and other personnel, you have gathered the following information.

The BXI-4 project has an economic life of 5 years. It would generate a revenue of Rs.200 million in year1 which will rise by Rs.20 million per year for the following two years. Thereafter, revenues will decline by Rs.10 million per year for the remaining two years. Operating costs (costs before depreciation, interest, and taxes) will be 50 percent of revenues. BXI-4 is expected to erode the revenues of an existing bulk drug. Due to this erosion there will be a loss of Rs.10 million per year by way of contribution margin for 5 years. While there may be some other impacts as well, they may be ignored in the present analysis.

BXI-4 will require an outlay of Rs.100 million in plant and machinery right in the beginning. The same will be financed by equity and term loan in the ratio 3:2. The term loan will carry an interest of 14 percent per annum and will be repayable in 4 equal annual instalments, the first instalment falling due at the end of year 2.

For tax purposes, the depreciation rate will be 15 percent as per the written down value method. The net salvage value of plant and machinery after 5 years is expected to be Rs.30 million.

The net working capital requirement will be 25 percent of revenues. Assume that the investment in net working capital will be made right in the beginning of each year and the same will be fully financed by working capital advance carrying an interest rate of 12 percent per annum. At the end of 5

years the working capital is expected to be liquidated at par. The effective tax rate is 30%

*Required*

- (a) Estimate the net cash flows relating to explicit cost funds (investor claims) over the 5-year period.
  - (b) Estimate the net cash flows relating to equity over the 5-year period.
6. Swadisht Corporation is considering the manufacture of a new health drink for which the following information has been gathered.

The new product is expected to have a product life cycle of five years after which it will be withdrawn from the market. The sales from this product are expected to be as follows:

| Year                   | 1    | 2    | 3    | 4   | 5   |
|------------------------|------|------|------|-----|-----|
| Sales (Rs. in million) | 1000 | 1400 | 1500 | 900 | 500 |

- The capital equipment required for manufacturing the new product costs Rs. 500 million and it will be depreciated at the rate of 20 percent per year as per the WDV method for tax purposes. The expected net salvage value after 5 years is Rs. 120 million.
- The working capital requirement for the project is expected to be 25% of sales. Working capital level will be adjusted at the beginning of the year in relation to the sales for the year. At the end of five years, working capital is expected to be liquidated at par.
- The accountant of the firm has provided the following estimates for the cost of the new product.

|  |                       |
|--|-----------------------|
| Raw material cost                            | : 40 percent of sales |
| Variable manufacturing cost                  | : 25 percent of sales |
| Fixed annual operating and maintenance costs | : Rs. 20 million      |
| Variable selling expenses                    | : 12 percent of sales |

- The tax rate for the firm is 30 percent.

*Required:*

- (a) Estimate the post-tax incremental cash flows for the project to manufacture the new product.
- (b) What is the NPV of the project if the cost of capital is 20 percent?

**Chapter 13**  
**RISK ANALYSIS IN CAPITAL BUDGETING**

1. A project requires an investment of Rs. 1000 million. The unit selling price is Rs.50 and the unit variable cost is Rs.30. Fixed costs other than depreciation will be Rs. 400 million per year. Depreciation will be Rs. 150 million per year for tax purposes. The life of the project is 8 years. The effective tax rate is 30 percent. The cost of capital is 16 percent. What is the financial break-even point?
2. A project requires an investment of Rs. 80 million. The unit selling price is Rs.1800 and the unit variable cost is Rs.1296. Fixed costs other than depreciation will be Rs. 20 million per year. Depreciation will be Rs. 12 million per year for tax purposes. The life of the project is 8 years. The effective tax rate is 30 percent. The cost of capital is 13 percent. What is the financial break-even point? Give your answer correct to the nearest million.
3. A project requires an investment of Rs. 200 million. The unit selling price is Rs.600 and the unit variable cost is Rs.450. Fixed costs other than depreciation will be Rs. 60 million per year. Depreciation will be Rs. 30 million per year for tax purposes. The life of the project is 6 years. The effective tax rate is 32 percent. The cost of capital is 15 percent. What is the financial break-even point?



## Chapter 14 THE COST OF CAPITAL

1. The latest balance sheet of Karishma Ltd. is given below

(Rs. in lakhs)

| <b>Liabilities</b>               |        | <b>Assets</b>                      |        |
|----------------------------------|--------|------------------------------------|--------|
| Equity capital                   | 6,000  | Fixed assets                       | 13,000 |
| Preference capital               | 800    | Investments                        | 1,000  |
| Reserves and Surplus             | 4,000  | Current assets, loans and advances | 6,000  |
| Debentures                       | 4,500  |                                    |        |
| Working capital loan             | 2,500  |                                    |        |
| Current liabilities & Provisions | 2,200  |                                    |        |
|                                  | 20,000 |                                    | 20,000 |

The target capital structure of Karishma Ltd. has 50 percent equity, 10 percent preference, and 40 percent debt. Karishma Ltd's preference capital has a post-tax cost of 13 percent. Karishma Ltd's debentures have a face value of Rs. 1000 each, residual maturity of 4 years and carry an annual coupon rate of 15 percent. The market price of these debentures is Rs. 1100. Working capital loan carries an interest rate of 14 percent. Karishma Ltd's equity stock is currently selling for Rs. 250 per share. Its last dividend was Rs. 6.00 per share and the dividend per share is expected to grow at a rate of 15 percent per year in future.

Karishma Ltd's equity beta is 1.5, the risk-free rate is 8 percent, and the market risk premium is 7 percent. Karishma Ltd's tax rate is 31 percent.

- (i) What is Karishma Ltd.'s average pre-tax cost of debt?  
(Use the approximate yield formula)
- (ii) What is Karishma Ltd's cost of equity using the constant growth dividend discount model?
- (iii) What is Karishma Ltd's post tax weighted average cost of capital? Use the CAPM to estimate the cost of equity and employ the weights in the target capital structure.

2. The latest balance sheet of Vaibhav Ltd. is given below

(Rs. in lakhs)

| <b>Liabilities</b>               |         | <b>Assets</b>                      |         |
|----------------------------------|---------|------------------------------------|---------|
| Equity capital                   | 40,000  | Fixed assets                       | 80,000  |
| Preference capital               | 5,000   | Investments                        | 18,000  |
| Reserves and Surplus             | 60,000  | Current assets, loans and advances | 40,000  |
| Debentures                       | 15,000  |                                    |         |
| Working capital loan             | 10,000  |                                    |         |
| Current liabilities & Provisions | 8,000   |                                    |         |
|                                  | 138,000 |                                    | 138,000 |

The target capital structure of Vaibhav Ltd. has 75 percent equity, 5 percent preference, and 20 percent debt. Vaibhav Ltd's preference capital has a post-tax cost of 12 percent. Vaibhav Ltd's debentures have a face value of Rs. 100 each, residual maturity of 4 years and carry an annual coupon rate of 10 percent. The market price of these debentures is Rs. 104. Working capital loan carries an interest rate of 14 percent. Vaibhav Ltd's equity stock is currently selling for Rs. 200 per share. Its last dividend was Rs. 2.00 per share and the dividend per share is expected to grow at a rate of 12 percent per year in future.

Vaibhav Ltd's equity beta is 1.4, the risk-free rate is 5 percent, and the market risk premium is 6 percent. Vaibhav Ltd's tax rate is 33 percent.

- (i) What is Vaibhav Ltd.'s average pre-tax cost of debt?  
(Use the approximate yield formula)
- (ii) What is Vaibhav Ltd's cost of equity using the constant growth dividend discount model?
- (iii) What is Vaibhav Ltd's post tax weighted average cost of capital? Use the CAPM to estimate the cost of equity and employ the weights in the target capital structure.

3. The latest balance sheet of Uttam Ltd. is given below

(Rs. in lakhs)

| <b>Liabilities</b>               |        | <b>Assets</b>                      |        |
|----------------------------------|--------|------------------------------------|--------|
| Equity capital                   | 15,000 | Fixed assets                       | 32,000 |
| Preference capital               | 2,000  | Investments                        | 2,800  |
| Reserves and Surplus             | 10,300 | Current assets, loans and advances | 15,200 |
| Debentures                       | 11,200 |                                    |        |
| Working capital loan             | 6,400  |                                    |        |
| Current liabilities & Provisions | 5,100  |                                    |        |
|                                  | 50,000 |                                    | 50,000 |

The target capital structure of Uttam Ltd. has 60 percent equity, 15 percent preference, and 25 percent debt. Uttam Ltd's preference capital has a post-tax cost of 12 percent. Uttam Ltd's debentures have a face value of Rs. 100 each, residual maturity of 5 years and carry an annual coupon rate of 14 percent. The market price of these debentures is Rs. 90. Working capital loan carries an interest rate of 13 percent. Uttam Ltd's equity stock is currently selling for Rs. 120 per share. Its last dividend was Rs. 3.00 per share and the dividend per share is expected to grow at a rate of 10 percent per year in future.

Uttam Ltd's equity beta is 0.8, the risk-free rate is 6 percent, and the market risk premium is 10 percent. Uttam Ltd's tax rate is 32 percent.

- (i) What is Uttam Ltd.'s average pre-tax cost of debt?  
(Use the approximate yield formula)
  - (ii) What is Uttam Ltd's cost of equity using the constant growth dividend discount model?
  - (iii) What is Uttam Ltd's post tax weighted average cost of capital? Use the CAPM to estimate the cost of equity and employ the weights in the target capital structure.
4. You are looking at the valuation of a stable firm, Redrock Limited, done by an investment analyst. Based on an expected free cash flow of Rs. 42 million for the following year and an expected growth rate of 10 percent, the analyst has estimated the value of the firm to be Rs. 1200 million. However, he committed a mistake of using the book values of debt and equity. You do not know the book value weights employed by him but you know that the firm has a cost of equity of 16 percent and a post-tax cost of debt of 7 percent. The market value of equity is three times its book value, whereas the market value of debt is equal to its book value. What is the correct value of the firm?

## Chapter 15

### CAPITAL BUDGETING: EXTENSIONS

1. Joshila Corporation is evaluating a capital project requiring an outlay of Rs. 800 crores. It is expected to generate a net cash inflow of Rs. 220 crores per year for 6 years. The opportunity cost of capital is 16 percent. Joshila Corporation can raise a term loan of Rs. 500 crores for the project, carrying an interest rate of 15 percent per year payable annually. The principal amount will be repayable in 5 equal annual instalments commencing from the end of the second year of operations. The balance amount required for the project can be raised by issuing external equity. The issue cost is expected to be 3 percent. The effective tax rate for Joshila Corporation is 33 percent.
  - (i) What is the *base case* NPV?
  - (ii) What is the adjusted NPV if the adjustment is made only for the issue cost of external equity?
  - (iii) What is the present value of the tax shield?
  
2. BTM Limited is evaluating a capital project requiring an outlay of Rs. 1000 crores. It is expected to generate a net cash inflow of Rs. 400 crores per year for 5 years. The opportunity cost of capital is 12 percent. BTM Limited can raise a term loan of Rs. 600 crores for the project, carrying an interest rate of 10 percent per year payable annually. The principal amount will be repayable in 5 equal annual instalments commencing from the end of the first year of operations. The balance amount required for the project can be raised by issuing external equity. The issue cost is expected to be 6 percent. The effective tax rate for BTM Limited is 33 percent.
  - (i) What is the *base case* NPV?
  - (ii) What is the adjusted NPV if the adjustment is made only for the issue cost of external equity?
  - (iii) What is the present value of the tax shield?
  
3. Bright Limited is evaluating a capital project requiring an outlay of Rs. 500 crores. It is expected to generate a net cash inflow of Rs. 138 crores per year for 6 years. The opportunity cost of capital is 15 percent. Bright Limited can raise a term loan of Rs. 300 crores for the project, carrying an interest rate of 13 percent per year payable annually. The principal amount will be repayable in 6 equal annual instalments commencing from the end of the first year of operations. The balance amount required for the project can be raised by issuing external equity. The issue cost is expected to be 5 percent. The effective tax rate for Bright Limited is 31 percent.
  - (i) What is the *base case* NPV?
  - (ii) What is the adjusted NPV if the adjustment is made only for the issue cost of external equity?
  - (iii) What is the present value of the tax shield?

Chapter 20 to 22  
**CAPITAL STRUCTURE DECISION**

1. The profit and loss account for year 1 (the year which has just ended) and the balance sheet at the end of year 1 for NTPL Limited are as follows.

|                             |        | Rs. in million                 |        |
|-----------------------------|--------|--------------------------------|--------|
| <i>Balance Sheet</i>        |        | <i>Profit and Loss Account</i> |        |
| <u>Sources of Funds</u>     |        |                                |        |
| Shareholders' Funds         | 13,000 | Sales                          | 90,000 |
| Paid up capital :           |        | PBIT                           | 28,000 |
| (Par value of share Rs.5) : | 9,000  | Interest                       | 2,000  |
| Reserves and Surplus :      | 4,000  | PBT                            | 26,000 |
| Loan Funds                  | 20,000 | Tax ( $t_c = 31\%$ )           | 8,060  |
|                             | 33,000 | PAT                            | 17,940 |
| <u>Application of Funds</u> |        | Dividends (Rs. 6 per share)    | 10,800 |
| Net fixed assets            | 23,000 | Retained Earnings              | 7,140  |
| Net current assets          |        |                                |        |
|                             | 10,000 |                                |        |
|                             | 33,000 |                                |        |

- (i) If  $t_{pe} = 15\%$  and  $t_{pd} = 25\%$ , what is the tax advantage of a rupee of debt?  
 (ii) What should have been the ROI for NTPL Limited for it to meet its target ROE of 25 percent? Note that the pre-tax cost of debt is 10 percent.  
 (iii) NTPL Limited requires Rs. 4000 million of external financing for which it is  
 (iv) considering two alternatives:

Alternative A: Issue of 200 million equity shares of Rs. 5 par at Rs. 20 each.

Alternative B: Issue of Rs.4000 million of debentures carrying 12 percent interest rate.

What is the EPS-EBIT indifference point?

- (iv) What will be the expected dividend per share for year 2 if the expected EPS for year 2 is Rs. 12 and the target payout ratio and adjustment rates are 0.7 and 0.5 respectively? Assume that the Lintner model applies.
- (v) Given the net profit margin, dividend payout ratio, assets-to-equity ratio, and assets-to-sales ratio, as reflected in the financial statements of NTPL Limited, what rate of growth can be sustained with internal equity?
- (vi) Assume that investors expect a payoff of Rs. 260 a year from now from one share of NTPL Limited: Rs. 10 by way of dividend and Rs. 250 by way of share price. Dividend is taxed at the rate of 15 percent and capital appreciation is taxed at 10 percent. What will be the current price of NTPL Limited's share if investors expect a post-tax return of 30 percent?

2. The profit and loss account for year 1 (the year which has just ended) and the balance sheet at the end of year 1 for Aditi Limited are as follows.

|                             |               | Rs. in million                 |        |
|-----------------------------|---------------|--------------------------------|--------|
| <i>Balance Sheet</i>        |               | <i>Profit and Loss Account</i> |        |
| <u>Sources of Funds</u>     |               |                                |        |
| Shareholders' Funds         | 8,000         | Sales                          | 60,000 |
| Paid up capital :           |               | PBIT                           | 9,000  |
| (Par value of share Rs.5) : | 1,000         | Interest                       | 1,320  |
| Reserves and Surplus :      | 7,000         | PBT                            | 7,680  |
| Loan Funds                  | 12,000        | Tax ( $t_c = 30\%$ )           | 2,304  |
|                             | <u>20,000</u> | PAT                            | 5,376  |
| <u>Application of Funds</u> |               | Dividends (Rs. 10 per share)   | 2,000  |
| Net fixed assets            | 12,000        | Retained Earnings              | 3,376  |
| Net current assets          | <u>8,000</u>  |                                |        |
|                             | <u>20,000</u> |                                |        |

- (i) If  $t_{pe} = 30\%$  and  $t_{pd} = 20\%$ , what is the tax advantage of a rupee of debt?  
(ii) What should have been the ROI for Aditi Limited for it to meet its target ROE of 20 percent? Note that the pre-tax cost of debt is 11 percent.  
(iii) Aditi Limited requires Rs. 800 million of external financing for which it is considering two alternatives:

Alternative A: Issue of 16 million equity shares of Rs. 5 par at Rs. 50 each.

Alternative B: Issue of Rs.800 million of debentures carrying 15 percent interest rate.

What is the EPS-EBIT indifference point?

- (iv) What will be the expected dividend per share for year 2 if the expected EPS for year 2 is Rs. 25 and the target payout ratio and adjustment rates are 0.5 and 0.4 respectively? Assume that the Lintner model applies.
- (v) Given the net profit margin, dividend payout ratio, assets-to-equity ratio, and assets-to-sales ratio, as reflected in the financial statements of Aditi Limited, what rate of growth can be sustained with internal equity?
- (vi) Assume that investors expect a payoff of Rs. 75 a year from now from one share of Aditi Limited: Rs. 12 by way of dividend and Rs. 63 by way of share price. Dividend is taxed at the rate of 20 percent and capital appreciation is taxed at 10 percent. What will be the current price of Aditi Limited's share if investors expect a post-tax return of 20 percent?

3. The profit and loss account for year 1 (the year which has just ended) and the balance sheet at the end of year 1 for Orient Ltd. are as follows.

|                             |       | Rs. in million                 |        |
|-----------------------------|-------|--------------------------------|--------|
| <i>Balance Sheet</i>        |       | <i>Profit and Loss Account</i> |        |
| <u>Sources of Funds</u>     |       |                                |        |
| Shareholders' Funds         | 5,000 | Sales                          | 25,000 |
| Paid up capital :           |       | PBIT                           | 3,000  |
| (Par value of share Rs.5) : | 2,000 | Interest                       | 400    |
| Reserves and Surplus :      | 3,000 | PBT                            | 2,600  |
| Loan Funds                  |       | Tax ( $t_c = 33\%$ )           | 858    |
|                             | 4,000 | PAT                            | 1,742  |
|                             | 9,000 | Dividends (Rs. 2 per share)    | 800    |
| <u>Application of Funds</u> |       | Retained Earnings              | 942    |
| Net fixed assets            | 7,000 |                                |        |
| Net current assets          | 2,000 |                                |        |
|                             | 9,000 |                                |        |

- (i) If  $t_{pe} = 30\%$  and  $t_{pd} = 15\%$ , what is the tax advantage of a rupee of debt?  
(ii) What should have been the ROI for Orient Ltd for it to meet its target ROE of 18 percent? Note that the pre-tax cost of debt is 10 percent.  
(iii) Orient Ltd requires Rs. 500 million of external financing for which it is considering two alternatives:

- Alternative A: Issue of 25 million equity shares of Rs. 5 par at Rs. 20 each.  
Alternative B: Issue of Rs.500 million of debentures carrying 12 percent interest rate.

What is the EPS-EBIT indifference point?

- (iv) What will be the expected dividend per share for year 2 if the expected EPS for year 2 is Rs. 6 and the target payout ratio and adjustment rates are 0.3 and 0.5 respectively? Assume that the Lintner model applies.  
(v) Given the net profit margin, dividend payout ratio, assets-to-equity ratio, and assets-to-sales ratio, as reflected in the financial statements of Orient Ltd, what rate of growth can be sustained with internal equity?  
(vi) Assume that investors expect a payoff of Rs. 43 a year from now from one share of Orient Ltd : Rs. 3 by way of dividend and Rs. 40 by way of share price. Dividend is taxed at the rate of 15 percent and capital appreciation is taxed at 10 percent. What will be the current price of Orient Ltd's share if investors expect a post-tax return of 18 percent?

4. Omax Limited's present capital structure consists of 20 million equity shares of Rs. 10 each. It requires Rs. 100 million of additional financing. It is considering two alternatives:

Alternative 1 : Issue of 3 million equity shares of Rs. 10 par at Rs. 20 each and 4 million preference shares of Rs.10 par, carrying a dividend rate of 10 percent.

Alternative 2 : Issue of 4 million equity shares of Rs. 10 par at Rs. 20 each and debentures for Rs. 20 million carrying an interest rate of 11 percent.

The company's tax rate is 33 percent? What is the EPS-EBIT indifference point?

5. Hindustan Limited's present capital structure consists of 80 million equity shares of Rs. 10 each. It requires Rs. 100 million of additional financing. It is considering two alternatives:

Alternative 1 : Issue of 5 million equity shares of Rs. 10 par at Rs. 16 each and 2 million preference shares of Rs.10 par, carrying a dividend rate of 10 percent.

Alternative 2 : Issue of 4 million equity shares of Rs. 10 par at Rs. 16 each and debentures for Rs. 36 million carrying an interest rate of 11 percent.

The company's tax rate is 33 percent? What is the EPS-EBIT indifference point?



Chapter 24  
**CASH AND LIQUIDITY MANAGEMENT**

1. A firm requires Rs. 10 million in cash for meeting its transaction needs over the next four months, its planning horizon for liquidity decisions. It currently has the amount in the form of marketable securities that earn 15 percent annual yield. The cash payments will be made evenly over the planning period. The conversion of marketable securities into cash entails a fixed cost of Rs. 500 per transaction. What is the optimal conversion size as per Baumol model?
2. A firm requires Rs. 20 million in cash for meeting its transaction needs over the next four months, its planning horizon for liquidity decisions. It currently has the amount in the form of marketable securities that earn 12 percent annual yield. The cash payments will be made evenly over the planning period. The conversion of marketable securities into cash entails a fixed cost of Rs. 900 per transaction. What is the optimal conversion size as per Baumol model?
3. A firm requires Rs. 50 million in cash for meeting its transaction needs over the next three months, its planning horizon for liquidity decisions. It currently has the amount in the form of marketable securities that earn 8 percent annual yield. The cash payments will be made evenly over the planning period. The conversion of marketable securities into cash entails a fixed cost of Rs. 1000 per transaction. What is the optimal conversion size as per Baumol model?
4. Pyramid Corporation expects its cash flows to behave in a random manner, as assumed by the Miller and Orr model .The following information has been gathered.
  - Annual yield on marketable securities = 9 percent
  - The fixed cost of effecting a marketable securities transaction = Rs. 5,000
  - The standard deviation of the change in daily cash balance = Rs. 30,000
  - Minimum cash balance required to be maintained as per management policy = Rs. 400,000

What is the upper control point? Assume 360 days to a year

5. Jawan Corporation expects its cash flows to behave in a random manner, as assumed by the Miller and Orr model .The following information has been gathered.
  - Annual yield on marketable securities = 18 percent
  - The fixed cost of effecting a marketable securities transaction = Rs. 1,000
  - The standard deviation of the change in daily cash balance = Rs. 2,000
  - Minimum cash balance required to be maintained as per management policy = Rs. 500,000

(a) What is the upper control point? Assume 360 days to a year

Chapter 25  
**CREDIT MANAGEMENT**

1. Kiran is wondering whether credit should be granted to a new customer who is expected to make a repeat purchase. On the basis of credit evaluation, he feels that the probability that the customer will pay is 0.75 and the probability that the customer will default is 0.25. Once the customer pays for the first purchase, the probability that he will pay for the repeat purchase increases to 0.90. The revenue from the sale will be Rs. 150,000 and the cost of the sale will be Rs. 100,000 – these figures apply to both the initial and the repeat purchase.

What is the expected payoff if the credit is granted?

2. You are wondering whether credit should be granted to a new customer who is expected to make a repeat purchase. On the basis of credit evaluation, you feel that the probability that the customer will pay is 0.72 and the probability that the customer will default is 0.28. Once the customer pays for the first purchase, the probability that he will pay for the repeat purchase increases to 0.92. The revenue from the sale will be Rs. 100,000 and the cost of the sale will be Rs. 70,000 – these figures apply to both the initial and the repeat purchase.

What is the expected payoff if the credit is granted?

3. You are wondering whether credit should be granted to a new customer who is expected to make a repeat purchase. On the basis of credit evaluation, you feel that the probability that the customer will pay is 0.6 and the probability that the customer will default is 0.4. Once the customer pays for the first purchase, the probability that he will pay for the repeat purchase increases to 0.95. The revenue from the sale will be Rs. 600,000 and the cost of the sale would be Rs. 400,000 – these figures apply to both the initial and the repeat purchase.

What is the expected payoff if the credit is granted?

4. Jesco Ltd. presently has an annual turnover of Rs. 800 million and an average collection period of 20 days. The marketing director of the company believes that a longer credit period will stimulate additional sales. Of course, it is likely to be accompanied by higher bad debts. Extending the credit period is expected to increase sales by Rs. 100 million, lengthen the average collection period to 30 days, and increase the bad debts percentage to 2% (from the current level of 1%). The selling price of the product is Rs. 200 per unit and the variable cost per unit is Rs. 150. Jesco Ltd. requires a return of 20 % on its investments. Assume that a year consists of 360 days. What will be the change in residual income if the credit period is extended?

5. Bahar Ltd presently has an annual turnover of Rs. 1000 million and an average collection period of 30 days. The marketing director of the company believes that a longer credit period will stimulate additional sales. Of course, it is likely to be accompanied by higher bad debts. Extending the credit period is expected to increase sales by Rs. 200 million, lengthen the average collection period to 45 days, and increase the bad debts percentage to 3% (from the current level of 2%). The selling price of the product is Rs. 150 per unit and the variable cost per unit is Rs. 120. Bahar Limited requires a return of 20 % on its investments. Assume that a year consists of 360 days. What will be the change in residual income if the credit period is extended?
  
6. Pioneer Ltd. presently has an annual turnover of Rs. 1000 million and an average collection period of 30 days. The marketing director of the company believes that a longer credit period will stimulate additional sales. Of course, it is likely to be accompanied by higher bad debts. Extending the credit period is expected to increase sales by Rs. 200 million, lengthen the average collection period to 45 days, and increase the bad debts percentage to 3% (from the current level of 2%). The selling price of the product is Rs. 500 per unit and the variable cost per unit is Rs. 400. Pioneer Ltd. requires a return of 30 % on its investments. Assume that a year consists of 360 days. What will be the change in residual income if the credit period is extended?
  
7. Super Sales Limited's current sales are Rs. 300 million, its average collection period is 25 days, its variable cost to sales ratio,  $V$ , is 0.73, and its cost of capital is 13 percent. Its tax rate is 32.8 percent.
  - (i) If Super Sales Limited relaxes its credit standards, its sales would increase by Rs. 60 million on which bad debt losses will be 5 percent. What will be the effect of relaxing the credit standards on residual income?
  - (ii) The present credit terms of Super Sales are 2/15, net 30. The proportion of sales on which customers currently take discount, is 0.2. Super Sales is considering relaxing its credit terms to 3/15, net 45. Such a relaxation is expected to increase sales by Rs.70 million, increase the proportion of discount sales to 0.3, and reduce the ACP to 20 days.

What will be the effect of this on residual income?

Chapter 26  
**INVENTORY MANAGEMENT**

- 1 The finance department of Majestic Ltd. has gathered the following information:

|                         |   |                         |
|-------------------------|---|-------------------------|
| Annual sales            | = | 100,000 units           |
| Fixed cost per order    | = | Rs. 8,000               |
| Purchase price per unit | = | Rs. 60                  |
| Carrying cost           | = | 15 % of inventory value |

What is the Economic Order Quantity?

2. The finance department of Hero Ltd. has gathered the following information:

|                         |   |                        |
|-------------------------|---|------------------------|
| Annual sales            | = | 600,000 units          |
| Fixed cost per order    | = | Rs. 30,000             |
| Purchase price per unit | = | Rs. 500                |
| Carrying cost           | = | 20% of inventory value |

What is the Economic Order Quantity?

Chapter 27

**WORKING CAPITAL FINANCING**

1. The credit terms are 1/10, net 20. What is the cost of the trade credit?
2. The credit terms are 2/20, net 45 . What is the cost of the trade credit?

Chapter 23  
**WORKING CAPITAL POLICY**

1. The following information is available for Jai Hind Limited.

| <b>Profit and Loss Account Data</b> |         | <b>Balance Sheet Data</b> |      |                    |
|-------------------------------------|---------|---------------------------|------|--------------------|
|                                     |         | <i>Beginning of</i>       | 20X9 | <i>End of 20X9</i> |
| Sales                               | 200,000 | Inventory                 | 6400 | 6100               |
| Cost of goods sold                  | 126,000 | Accounts receivable       | 5500 | 5800               |
|                                     |         | Accounts payable          | 4300 | 4500               |

What is the duration of the cash cycle?

2. The following information is available for Apar Limited.

| <b>Profit and Loss Account Data</b> |        | <b>Balance Sheet Data</b> |      |                    |
|-------------------------------------|--------|---------------------------|------|--------------------|
|                                     |        | <i>Beginning of</i>       | 20X8 | <i>End of 20X8</i> |
| Sales                               | 20,000 | Inventory                 | 1800 | 160                |
| Cost of goods sold                  | 14,000 | Accounts receivable       | 1000 | 1200               |
|                                     |        | Accounts payable          | 700  | 780                |

What is the duration of the cash cycle?

3. The following information is available for a firm.

| <b>Profit and Loss Account Data</b> |         | <b>Balance Sheet Data</b> |        |                    |
|-------------------------------------|---------|---------------------------|--------|--------------------|
|                                     |         | <i>Beginning of</i>       | 2009   | <i>End of 2009</i> |
| Sales                               | 800,000 | Inventory                 | 20,000 | 24,000             |
| Cost of goods sold                  | 540,000 | Accounts receivable       | 80,000 | 95,000             |
|                                     |         | Accounts payable          | 52,000 | 43,000             |

What is the duration of the cash cycle?

## Chapter 28

### WORKING CAPITAL MANAGEMENT: EXTENSIONS

1. You are the credit manager at Acme Home Needs, a large departmental store. You believe that net profit margin and debt equity are two good indicators that can be used to discriminate between good and bad accounts. A 'good' account is an account which pays within the stipulated credit period and a 'bad' account is an account which does not pay within the stipulated credit period. You have gathered information on 18 accounts, 10 'good' and 8 'bad', which is given below.

| <i>Account Number</i> | <i>Good Accounts</i>  |                   | <i>Account Number</i> | <i>Bad Accounts</i> |                   |
|-----------------------|-----------------------|-------------------|-----------------------|---------------------|-------------------|
|                       | Net profit margin (%) | Debt equity ratio |                       | Net profit margin   | Debt equity ratio |
| 1                     | 30                    | 1.2               | 11                    | 20                  | 1.4               |
| 2                     | 25                    | 1.0               | 12                    | 12                  | 1.0               |
| 3                     | 20                    | 0.6               | 13                    | 6                   | 0.8               |
| 4                     | 10                    | 0.3               | 14                    | 8                   | 0.7               |
| 5                     | 22                    | 1.0               | 15                    | 5                   | 0.5               |
| 6                     | 16                    | 0.7               | 16                    | 10                  | 0.9               |
| 7                     | 11                    | 0.4               | 17                    | 11                  | 1.2               |
| 8                     | 18                    | 0.5               | 18                    | 8                   | 0.5               |
| 9                     | 22                    | 0.8               |                       |                     |                   |
| 10                    | 15                    | 0.4               |                       |                     |                   |

Derive the discriminant function which best discriminates between the 'good' and the 'bad' accounts?

2. You are the credit manager at R K Retail who believes that current ratio and interest coverage ratio are two good indicators that can be used to discriminate between good and bad accounts. A 'good' account is an account which pays within the stipulated credit period and a 'bad' account is an account which does not pay within the stipulated credit period. You have gathered information on 18 accounts, 10 'good' and 8 'bad', which is given below.



| <i>Good Accounts</i>  |               |                         | <i>Bad Accounts</i>   |               |                         |
|-----------------------|---------------|-------------------------|-----------------------|---------------|-------------------------|
| <i>Account Number</i> | Current ratio | Interest coverage ratio | <i>Account Number</i> | Current ratio | Interest coverage ratio |
| 1                     | 1.45          | 8.2                     | 11                    | 0.81          | 4.1                     |
| 2                     | 1.38          | 7.4                     | 12                    | 0.80          | 3.5                     |
| 3                     | 1.25          | 5.6                     | 13                    | 1.15          | 3                       |
| 4                     | 1.15          | 6.5                     | 14                    | 0.98          | 2.8                     |
| 5                     | 1.10          | 7                       | 15                    | 1.20          | 2.5                     |
| 6                     | 1.00          | 5.8                     | 16                    | 1.10          | 2.1                     |
| 7                     | 0.96          | 6.2                     | 17                    | 1.00          | 1.8                     |
| 8                     | 0.92          | 8.5                     | 18                    | 1.06          | 1.2                     |
| 9                     | 0.90          | 7.5                     |                       |               |                         |
| 10                    | 0.86          | 6.9                     |                       |               |                         |

Derive the discriminant function which best discriminates between the 'good' and the 'bad' accounts?

3. You are the credit manager at Super Mega Stores. From your past experience you believe that debt equity ratio and net profit margin are two good indicators that can be used to discriminate between good and bad accounts. A 'good' account is an account which pays within the stipulated credit period and a 'bad' account is an account which does not pay within the stipulated credit period. You have gathered information on 18 accounts, 10 'good' and 8 'bad', which is given below.

| <i>Good Accounts</i>  |                   |                       | <i>Bad Accounts</i>   |                   |                   |
|-----------------------|-------------------|-----------------------|-----------------------|-------------------|-------------------|
| <i>Account Number</i> | Debt equity ratio | Net profit margin (%) | <i>Account Number</i> | Debt equity ratio | Net profit margin |
| 1                     | 0.85              | 30                    | 11                    | 0.80              | 12                |
| 2                     | 0.80              | 18                    | 12                    | 1.10              | 12                |
| 3                     | 0.75              | 16                    | 13                    | 1.00              | 15                |
| 4                     | 0.70              | 14                    | 14                    | 0.70              | 12                |
| 5                     | 0.65              | 15                    | 15                    | 1.20              | 10                |
| 6                     | 0.65              | 22                    | 16                    | 1.50              | 9                 |
| 7                     | 0.55              | 12                    | 17                    | 0.90              | 8                 |
| 8                     | 0.45              | 10                    | 18                    | 1.30              | 14                |
| 9                     | 0.50              | 18                    |                       |                   |                   |
| 10                    | 0.30              | 8                     |                       |                   |                   |

Derive the discriminant function which best discriminates between the 'good' and the 'bad' accounts?

## Chapter 29

### Debt Analysis and Management

1. Assume the following spot rates:

| Year      | 1    | 2    | 3    | 4    | 5     |
|-----------|------|------|------|------|-------|
| Spot Rate | 9.1% | 9.2% | 9.5% | 9.7% | 10.2% |

What are the forward rates over each of the five years?

2. Assume the following spot rates:

| Year      | 1     | 2     | 3    | 4     | 5     |
|-----------|-------|-------|------|-------|-------|
| Spot Rate | 6.8 % | 6.9 % | 7.2% | 7.4 % | 7.5 % |

What are the forward rates over each of the five years?

3. Mukund Corporation has a Rs. 2000 million, 14 percent (coupon rate) bond issue outstanding which has a residual maturity of 6 years. The bonds were issued 4 years ago at par for Rs. 2000 million and Mukund incurred floatation costs of Rs. 100 million which were being amortised for tax purposes at the rate of Rs. 10 million per year. If the bonds are called, the unamortised portion of the floatation costs (Rs. 60 million) can be deducted for tax purposes. Mukund's tax rate is 33 percent. Mukund can call the bonds for Rs. 2200 million. Assume that the call premium of Rs. 200 million can be treated as a tax-deductible expense.

Mukund has been advised by its merchant bankers that due to fall in interest rates, the firm can issue Rs. 2000 million of new debt at an interest rate of 10 percent and use the proceeds for refunding the old bonds. The new issue will have a maturity of 6 years and involve a floatation cost of Rs. 72 million, which can be amortised in 6 equal annual installments for tax purposes.

- (i) What will be the initial outlay?
- (ii) What will be the annual net cash savings?
- (iii) What is the NPV of refunding the bond? Give the answer correct to the nearest million.

4. Radiant Ltd. has a Rs. 1000 million, 10 percent (coupon rate) bond issue outstanding which has a residual maturity of 3 years. The bonds were issued 4 years ago at par for Rs. 1000 million and Radiant incurred floatation costs of Rs. 35 million which were being amortised for tax purposes at the rate of Rs. 5 million per year. If the bonds are called, the unamortised portion of the floatation costs (Rs. 15 million) can be deducted for tax purposes. Radiant's tax rate is 33 percent. Radiant can call the bonds for Rs. 1100 million. Assume that the call premium of Rs. 100 million can be treated as a tax-deductible expense.

Radiant has been advised by its merchant bankers that due to fall in interest rates, the firm can issue Rs. 1000 million of new debt at an interest rate of 7 percent and use the proceeds for refunding the old bonds. The new issue will have a maturity of 3 years and involve a floatation cost of Rs. 18 million, which can be amortised in 3 equal annual installments for tax purposes.

- (i) What will be the initial outlay?
- (ii) What will be the annual net cash savings?
- (iii) What is the NPV of refunding the bond? Give the answer correct to the nearest million.

5. Acme Corporation has a Rs. 4000 million, 12 percent (coupon rate) bond issue outstanding which has a residual maturity of 5 years. The bonds were issued 3 years ago at par for Rs. 4000 million and Acme incurred floatation costs of Rs. 200 million which were being amortised for tax purposes at the rate of Rs. 25 million per year. If the bonds are called, the unamortised portion of the floatation costs (Rs. 125 million) can be deducted for tax purposes. Acme's tax rate is 32 percent. Acme can call the bonds for Rs. 4300 million. Assume that the call premium of Rs. 300 million can be treated as a tax-deductible expense.

Acme has been advised by its merchant bankers that due to fall in interest rates, the firm can issue Rs. 4000 million of new debt at an interest rate of 8 percent and use the proceeds for refunding the old bonds. The new issue will have a maturity of 5 years and involve a floatation cost of Rs. 250 million, which can be amortised in 5 equal annual installments for tax purposes.

- (i) What will be the initial outlay?
- (ii) What will be the annual net cash savings?
- (iii) What is the NPV of refunding the bond? Give the answer correct to the nearest million.

## Chapter 30

# LEASING, HIRE PURCHASE, AND PROJECT FINANCE

1. Deepak Associates has decided to go for a plant costing Rs. 100 million. They are considering two alternatives: (i) leasing the plant, and (ii) borrowing and purchasing the plant. Premier Leasing is willing to lease the plant to Deepak Associates for an annual lease rental of Rs. 30 million for 5 years, the lease rental being payable at the end of each year. There is a management fees of Rs. 0.5 million payable on signing the lease contract.

The tax relevant depreciation rate on the plant is 25 percent as per the WDV method. The net salvage value of the plant after five years is expected to be Rs.30 million. Deepak Associates has an effective tax rate of 32 percent and its post- tax cost of debt is 12 percent.

What is the net advantage of leasing (NAL) for Deepak Associates?

2. Techno Limited has decided to go for a machine costing Rs. 4 million. Techno is considering two alternatives: (i) leasing the machine, and (ii) borrowing and purchasing the machine. Comfort Leasing is willing to lease the machine to Techno for an annual lease rental of Rs. 1.2 million for 5 years, the lease rental being payable in arrears. There is a management fees of Rs. 0.16 million payable on signing the lease contract.

The tax relevant depreciation rate on the machine is 20 percent as per the WDV method. The net salvage value of the machine after five years is expected to be Rs.1 million. Techno has an effective tax rate of 30 percent and its post-tax cost of debt is 9 percent.

What is the net advantage of leasing (NAL) for Techno Limited?

3. Riyaz Limited has decided to go for a plant costing Rs. 60 million. Riyaz is considering two alternatives: (i) leasing the plant, and (ii) borrowing and purchasing the plant. Bright Leasing is willing to lease the plant to Riyaz for an annual lease rental of Rs. 18 million for 5 years, the lease rental being payable at the end of each year. There is a management fees of Rs. 0.1 million payable on signing the lease contract.

The tax relevant depreciation rate on the plant is 20 percent as per the WDV method. The net salvage value of the plant after five years is expected to be Rs.10 million. Riyaz has an effective tax rate of 33 percent and its post- tax cost of debt is 13 percent.

What is the net advantage of leasing (NAL) for Riyaz I Limited?

4. Vijay Limited has decided to go for a machine costing Rs. 10 million. Vijay is considering two alternatives: (i) leasing the machine, and (ii) borrowing and purchasing the machine. Mega Leasing is willing to lease the machine to Vijay for an annual lease rental of Rs. 3 million for 5 years, the lease rental being

payable in arrears. There is a management fees of Rs. 0.5 million payable on signing the lease contract.

The tax relevant depreciation rate on the machine is 25 percent as per the WDV method. The net salvage value of the machine after five years is expected to be Rs.3 million. Vijay has an effective tax rate of 32 percent and its post- tax cost of debt is 8 percent.

What is the net advantage of leasing (NAL) for Vijay Limited?

5. Bimal Limited has decided to go for a plant costing Rs. 10 million. Bimal is considering two alternatives: (i) leasing the plant, and (ii) borrowing and purchasing the plant. New Era Leasing is willing to lease the plant to Bimal for an annual lease rental of Rs. 3 million for 5 years, the lease rental being payable at the end of each year. There is a management fees of Rs. 0.15 million payable on signing the lease contract.

The tax relevant depreciation rate on the plant is 25 percent as per the WDV method. The net salvage value of the plant after five years is expected to be Rs.4 million. Bimal has an effective tax rate of 32 percent and its post- tax cost of debt is 12 percent.

What is the net advantage of leasing (NAL) for Bimal I Limited?

Chapter 32  
**CORPORATE VALUATION**

1. The profit and loss account and balance sheet of a company for two years (1 and 2) are given below. Assume a tax rate of 32 percent for year 2.

| Profit and Loss Account                               | 1      | 2      |
|---|--------|--------|
| • Net sales   | 35,000 | 39,000 |
| • Income from marketable securities                   | 800    | 860    |
| • Non-operating income                                | 500    | 650    |
| • Total income  | 36,300 | 40,510 |
| • Cost of goods sold                                  | 25,400 | 28,000 |
| • Selling and administrative expenses                 | 2,000  | 2,600  |
| • Depreciation  | 3,200  | 3,000  |
| • Interest expenses                                   | 600    | 680    |
| • Total costs and expenses                            | 31,200 | 34,280 |
| • PBT   | 5,100  | 6,230  |
| • Tax provision                                       | 1,632  | 1,994  |
| • PAT   | 3,468  | 4,236  |
| • Dividends   | 600    | 600    |
| • Retained earnings                                   | 2,868  | 3,636  |
| Balance Sheet   |        |        |
| • Equity capital                                      | 5,000  | 5,000  |
| • Reserves and surplus                                | 12,000 | 15,636 |
| • Debt  | 8,000  | 8,800  |
|   | 25,000 | 29,436 |
| • Fixed Assets  | 12,000 | 12,236 |
| • Investments (marketable securities)*                | 6,000  | 8,000  |
| • Net current assets                                  | 7,000  | 9,200  |
|   | 25,000 | 29,436 |
| * All of this represents excess marketable securities |        |        |

- (i) What is the EBIT for year 2?  
(ii) What is the tax on EBIT for year 2?  
(iii) What is the FCFF for year 2?  
(iv) What is the break-up of the financing flow?

2. The profit and loss account and balance sheet of a company for two years (1 and 2) are given below. Assume a tax rate of 32 percent for year2.

| Profit and Loss Account                               | 1       | 2       |
|---|---------|---------|
| • Net sales   | 100,000 | 120,000 |
| • Income from marketable securities                   | 260     | 400     |
| • Non-operating income                                | 2,400   | 3,000   |
| • Total income  | 102,660 | 123,400 |
| • Cost of goods sold                                  | 62,000  | 76,000  |
| • Selling and administrative expenses                 | 13,000  | 15,000  |
| • Depreciation  | 11,000  | 12,000  |
| • Interest expenses                                   | 3,000   | 3,600   |
| • Total costs and expenses                            | 89,000  | 106,600 |
| • PBT   | 13,660  | 16,800  |
| • Tax provision                                       | 4,100   | 5,040   |
| • PAT   | 9,560   | 11,760  |
| • Dividends   | 2,000   | 1,500   |
| • Retained earnings                                   | 7,560   | 10,260  |
| Balance Sheet   |         |         |
| • Equity capital                                      | 13,000  | 13,000  |
| • Reserves and surplus                                | 38,000  | 48,260  |
| • Debt  | 25,000  | 28,000  |
|   | 76,000  | 89,260  |
| • Fixed Assets  | 56,000  | 68,000  |
| • Investments (marketable securities)*                | 1,000   | 1,000   |
| • Net current assets                                  | 19,000  | 20,260  |
|   | 76,000  | 89,260  |
| * All of this represents excess marketable securities |         |         |

- (i) What is the EBIT for year 2?  
(ii) What is the tax on EBIT for year 2?  
(iii) What is the FCFF for year 2?  
(iv) What is the break-up of the financing flow?
3. **Free Cash Flow to Firm** The profit and loss account and balance sheet of a company for two years (1 and 2) are given below. Assume a tax rate of 30 percent for year2.

| Profit and Loss Account                               | 1      | 2      |
|---|--------|--------|
| • Net sales   | 73,000 | 92,000 |
| • Income from marketable securities                   | 900    | 1,000  |
| • Non-operating income                                | 1,000  | 1,200  |
| • Total income  | 74,900 | 94,200 |
| • Cost of goods sold                                  | 43,800 | 55,000 |
| • Selling and administrative expenses                 | 9,200  | 11,000 |
| • Depreciation  | 8,000  | 8,200  |
| • Interest expenses                                   | 2,100  | 2,800  |
| • Total costs and expenses                            | 63,100 | 77,000 |
| • PBT   | 11,800 | 17,200 |
| • Tax provision                                       | 3,540  | 5,160  |
| • PAT   | 8,260  | 12,040 |
| • Dividends   | 1,000  | 1,000  |
| • Retained earnings                                   | 7,260  | 11,040 |
| Balance Sheet   |        |        |
| • Equity capital                                      | 9,200  | 9,200  |
| • Reserves and surplus                                | 27,000 | 38,040 |
| • Debt  | 18,000 | 19,000 |
|   | 54,200 | 66,240 |
| • <del>Fixed Assets</del>                             | 33,000 | 41,000 |
| • Investments (marketable securities)*                | 7,600  | 8,030  |
| • Net current assets                                  | 13,600 | 17,210 |
|   | 54,200 | 66,240 |
| * All of this represents excess marketable securities |        |        |

- (i) What is the EBIT for year 2?
- (ii) What is the tax on EBIT for year 2?
- (iii) What is the FCFF for year 2?
- (iv) What is the break-up of the financing flow?

4. NRF Limited proposes to acquire the rubber division of Konkan Agro Limited at the end of the current year which is 2009. In the beginning of 2009, the rubber division was having an asset value of Rs. 160 million and the same is expected to grow at a rate of 25 percent for the first three years, 15 percent for the next two years and ten percent thereafter. The ratio of NOPAT each year to the asset value at the beginning of that year would be 0.3. The opportunity cost of capital for the proposed purchase is 20 %. What will be the value of this acquisition?

Round-off your answer to the nearest million.

5. It is the beginning of 2009 and Minar Exports is evaluating a project to acquire the rubber division of Malwa Tyres at the end of the year. At present the rubber division is having an asset value of Rs. 100 million and the same is



expected to grow at a rate of 25 percent for the first two years, 15 percent for the next two years and 10 percent thereafter. The ratio of NOPAT each year to the asset value at the beginning of that year would be 0.2. The opportunity cost of capital for the proposed purchase is 18 %. What will be the value of this acquisition?

Workout your answer correct to the nearest million.

6. It is the beginning of 2010 and Konkan Industries is evaluating a project to acquire the textile division of JP Corporation at the end of the year. At present the textile division is having an asset value of Rs. 400 million and the same is expected to grow at a rate of 30 percent for the first two years, 20 percent for the next two years and 8 percent thereafter. The ratio of NOPAT each year to the asset value at the beginning of that year would be 0.3. The opportunity cost of capital for the proposed purchase is 20 %. What will be the value of this acquisition?

Workout your answer correct to the nearest million.

7. Silverman Ltd, an investment banking firm, is engaged in valuing Brandz, a firm that specialises in manufacturing lifestyle garments. Brandz is poised to grow at a rapid rate for the next four years, thanks to some large orders received recently. Thereafter, the growth rate is expected to decline steadily for a few years settling down at a modest level.

As a financial analyst working at Silverman, you have been asked to value Brandz. After discussing with the management of Brandz and consulting several experts in the industry, you have assembled the following information.

| <i>Base Year (Year 0) Information</i>         |                                     |
|---|-------------------------------------|
| • Revenues                                    | = Rs. 600 crore                     |
| • EBIT (25% of revenues)                      | = Rs. 150 crore                     |
| • Capital expenditure                         | = Rs. 75 crore                      |
| • Depreciation and amortisation               | = Rs. 60 crore                      |
| • Working capital as a percentage of revenues | = 20 percent                        |
| • Tax rate                                    | = 32 percent (for all time to come) |

| <i>Inputs for the High Growth Period</i>                               |              |
|--|--------------|
| • Length of the high growth period                                     | = 4 years    |
| • Growth rate in revenues, depreciation, EBIT, and capital expenditure | = 40 percent |
| • Working capital as a percentage of revenues                          | = 20 percent |

|                          |              |
|--------------------------|--------------|
| • Cost of debt (pre-tax) | = 13 percent |
| • Debt-equity ratio      | = 2:1        |
| • Risk-free rate         | = 8 percent  |
| • Market risk premium    | = 9 percent  |
| • Equity beta            | = 1.8        |

| <i>Inputs for the Transition Period</i>   |              |
|---|--------------|
| • Length of the transition period   | 5 years      |
| • Growth rate in revenues, depreciation, EBIT and capital expenditures will decline linearly from 40 percent in year 4 to 10 percent in year 9. |              |
| • Working capital as a percentage of revenues   | = 20 percent |
| • The cost of debt, debt-equity ratio, risk-free rate, market risk premium and equity beta will be the same as in high growth period            |              |

| <i>Inputs for the Stable Growth Period</i>   |              |
|--|--------------|
| • Growth rate in revenues, EBIT, capital expenditure and depreciation                                  | = 10 percent |
| • Working capital as a percentage of revenues  | = 20 percent |
| • The cost of debt, risk-free rate and market risk premium will be the same as in the previous stages. |              |
| • Debt-equity ratio  | = 1.4 : 1    |
| • Equity beta  | = 1.2        |

*Required:*

- What is the cost of capital in the three periods: high growth, transition, and stable?
- What value would you impute to Brandz using the DCF method?

8. Globinvest, an investment banking firm, is engaged in valuing Neo Fabs, a firm that specialises in manufacturing fashion garments. Neo is poised to grow at a rapid rate for the next five years, thanks to some large orders received recently. Thereafter, the growth rate is expected to decline steadily for a few years settling down at a modest level.

As a financial analyst working at Globinvest, you have been asked to value Neo. After discussing with the management of Neo and consulting several experts in the industry, you have assembled the following information.

| <i>Base Year (Year 0) Information</i>         |                                     |
|---|-------------------------------------|
| • Revenues                                    | = Rs. 800 crore                     |
| • EBIT (20% of revenues)                      | = Rs. 160 crore                     |
| • Capital expenditure                         | = Rs. 100 crore                     |
| • Depreciation and amortisation               | = Rs. 80 crore                      |
| • Working capital as a percentage of revenues | = 30 percent                        |
| • Tax rate                                    | = 32 percent (for all time to come) |

| <i>Inputs for the High Growth Period</i>                               |                |
|--|----------------|
| • Length of the high growth period                                     | = 4 years      |
| • Growth rate in revenues, depreciation, EBIT, and capital expenditure | = 50 percent   |
| • Working capital as a percentage of revenues                          | = 30 percent   |
| • Cost of debt (pre-tax)   | = 13.5 percent |
| • Debt-equity ratio  | = 3:2          |
| • Risk-free rate   | = 6 percent    |
| • Market risk premium  | = 8 percent    |
| • Equity beta  | = 1.6          |

| <i>Inputs for the Transition Period</i>   |              |
|---|--------------|
| • Length of the transition period   | 5 years      |
| • Growth rate in revenues, depreciation, EBIT and capital expenditures will decline linearly from 50 percent in year 4 to 10 percent in year 9. |              |
| • Working capital as a percentage of  | = 30 percent |

|  |  |
|--|--|
| revenues   |  |
| <ul style="list-style-type: none"> <li>The cost of debt, debt-equity ratio, risk-free rate, market risk premium and equity beta will be the same as in high growth period</li> </ul> |  |

| <i>Inputs for the Stable Growth Period</i>   |              |
|--|--------------|
| <ul style="list-style-type: none"> <li>Growth rate in revenues, EBIT, capital expenditure and depreciation</li> </ul>                                  | = 10 percent |
| <ul style="list-style-type: none"> <li>Working capital as a percentage of revenues</li> </ul>  | = 30 percent |
| <ul style="list-style-type: none"> <li>The cost of debt, risk-free rate and market risk premium will be the same as in the previous stages.</li> </ul> |              |
| <ul style="list-style-type: none"> <li>Debt-equity ratio</li> </ul>  | = 1 : 1      |
| <ul style="list-style-type: none"> <li>Equity beta</li> </ul>  | = 1.1        |

*Required:*

- What is the cost of capital in the three periods: high growth, transition, and stable?
- What value would you impute to Neo Fabs using the DCF method?

## Chapter 33

### VALUE BASED MANAGEMENT

1. The income statement for year 0 (the year which has just ended) and the balance sheet at the end of year 0 for Apex Ltd. are as follows

| Income Statement      |        | Balance Sheet |        |                |        |
|-----------------------|--------|---------------|--------|----------------|--------|
| • Sales               | 48,000 | Equity        | 20,000 | Fixed assets   | 15,000 |
| • Gross margin (25%)  | 12,000 |               |        |                |        |
| • SG&A expenses (10%) | 4,800  |               |        |                |        |
| • PBT                 | 7,200  |               |        | Current assets | 5,000  |
| • Tax                 | 2,160  |               |        |                |        |
| • PAT                 | 5,040  |               | 20,000 |                | 20,000 |

Apex Limited is debating whether it should maintain the status quo or adopt a new strategy. If it maintains the status quo:

- The sales will remain constant at 48,000
- The gross margin will remain at 25 % and the SG&A expenses will be 10% of sales.
- Depreciation charges will be equal to new investments.
- The asset turnover ratios will remain constant.
- The discount rate will be 17 percent.
- The income tax rate will be 30 percent.

If Apex Limited adopts a new strategy, its sales will grow at a rate of 15 percent per year for three years. The margins, the turnover ratios, the capital structure, the income tax rate, and the discount rate, however, will remain unchanged. Depreciation charges will be equal to 15 percent of the net fixed assets at the beginning of the year.

#### Required:

- (a) What is the value of the new strategy?
2. A company earns a return on equity of 40 percent. The dividend payout ratio is 60 percent. Equity shareholders of the company require a return of 28 percent. The book value per share is Rs. 400.

- (i) What is the market price per share, according to the Marakon model?
  - (ii) If the return earned on equity falls to 30 percent, what should be the payout ratio to ensure that the market price per share remains unchanged?
3. A company earns a return on equity of 25 percent. The dividend payout ratio is 20 percent. Equity shareholders of the company require a return of 22 percent. The book value per share is Rs. 80.
  - (i) What is the market price per share, according to the Marakon model?
  - (ii) If the return earned on equity falls to 23 percent, what should be the payout ratio to ensure that the market price per share remains unchanged?
4. The balance sheet of Magna Ltd. as on 31/03/20X9 is given below:

| <i>Equity and Liabilities</i> |            | <i>Assets</i>      |            |
|-------------------------------|------------|--------------------|------------|
| Equity                        | 400        | Fixed assets (net) | 500        |
| Debt                          | 300        | Net current assets | 200        |
|                               | <u>700</u> |                    | <u>700</u> |

The profit and loss account for the year 1/4/20X8 – 31/3/20X9 is given below:

|                    |      |
|--------------------|------|
| Revenues           | 1000 |
| Cost of goods sold | 600  |
| Gross profit       | 400  |
| Operating expenses | 100  |
| PBIT               | 300  |
| Interest           | 60   |
| Profit before tax  | 240  |
| Tax                | 70   |
| Profit after tax   | 170  |

Magna's equity has a beta of 0.90. The risk free return is 8 percent and the market return is 15 percent. Magna's pre-tax cost of debt is 20%. The tax rate for Magna is 30 percent. What is the EVA for 20X8–20X9?

5. The balance sheet of Optima Corporation as on 31/03/20X9 is given below:

| <i>Equity and Liabilities</i> |            | <i>Assets</i>      |            |
|-------------------------------|------------|--------------------|------------|
| Equity                        | 180        | Fixed assets (net) | 150        |
| Debt                          | 100        | Net current assets | 130        |
|                               | <u>280</u> |                    | <u>280</u> |

The profit and loss account for the year 1/4/20X8 – 31/3/20X9 is given below:

|                    |     |
|--------------------|-----|
| Revenues           | 360 |
| Cost of goods sold | 210 |
| Gross profit       | 150 |
| Operating expenses | 70  |

|                   |    |
|-------------------|----|
| PBIT              | 80 |
| Interest          | 10 |
| Profit before tax | 70 |
| Tax               | 20 |
| Profit after tax  | 50 |

Optima's equity has a beta of 0.9. The risk free return is 8 percent and the market return is 12 percent. Optima's pre-tax cost of debt is 14%. The tax rate for Optima is 30 percent. What is the EVA for 20X8–20X9?

6. The balance sheet of Dharampal Ltd. as on 31/03/2010 is given below:

| <i>Equity and Liabilities</i> |             | <i>Assets</i>      |             |
|-------------------------------|-------------|--------------------|-------------|
| Equity                        | 900         | Fixed assets (net) | 1000        |
| Debt                          | 700         | Net current assets | <u>600</u>  |
|                               | <u>1600</u> |                    | <u>1600</u> |

The profit and loss account for the year 1/4/2009 – 31/3/2010 is given below:

|                    |      |
|--------------------|------|
| Revenues           | 3000 |
| Cost of goods sold | 2000 |
| Gross profit       | 1000 |
| Operating expenses | 300  |
| PBIT               | 700  |
| Interest           | 200  |
| Profit before tax  | 500  |
| Tax                | 200  |
| Profit after tax   | 300  |

Dharampal Ltd.'s equity has a beta of 1.20. The risk free return is 7 percent and the market return is 14 percent. Dharampal Ltd.'s pre-tax cost of debt is 15%. The tax rate for Dharampal Ltd. is 32 percent. What is the EVA for 2009–2010?

7. A new plant entails an investment of Rs. 1,000 million (Rs. 600 million in fixed assets and Rs. 400 million in net working capital). The plant has an economic life of 10 years and is expected to produce a NOPAT of Rs. 140 million per year. After 10 years, the net working capital will be realised at par whereas fixed assets will fetch nothing. The cost of capital for the project is 15 percent. Assume that the straight line method of depreciation is used for tax as well as reporting purposes.

- (i) What will be the ROCE for year 3? Assume that the capital employed is measured at the beginning of the year.
- (ii) What will be the EVA for year 3?
- (iii) What will be the ROGI for year 3?
- (iv) What will be the CVA for year 3?
- (v) What will be the CFROI for year 3?

8. A new plant entails an investment of Rs. 9,000 million (Rs. 6,000 million in fixed assets and Rs. 3,000 million in net working capital). The plant has an economic life of 10 years and is expected to produce a NOPAT of Rs. 1,500 million per year. After 10 years, the net working capital will be realised at par whereas fixed assets will fetch nothing. The cost of capital for the project is 15 percent. Assume that the straight line method of depreciation is used for tax as well as reporting purposes.
- (i) What will be the ROCE for year 3? Assume that the capital employed is measured at the beginning of the year.
  - (ii) What will be the EVA for year 3?
  - (iii) What will be the ROGI for year 3?
  - (iv) What will be the CVA for year 3?
  - (v) What will be the CFROI for year 3?
9. A new plant entails an investment of Rs. 5,000 million (Rs. 3,400 million in fixed assets and Rs. 1,600 million in net working capital). The plant has an economic life of 10 years and is expected to produce a NOPAT of Rs. 900 million per year. After 10 years, the net working capital will be realised at par whereas fixed assets will fetch nothing. The cost of capital for the project is 16 percent. Assume that the straight line method of depreciation is used for tax as well as reporting purposes.
- (i) What will be the ROCE for year 3? Assume that the capital employed is measured at the beginning of the year.
  - (ii) What will be the EVA for year 3?
  - (iii) What will be the ROGI for year 3?
  - (iv) What will be the CVA for year 3?
  - (v) What will be the CFROI for year 3?



## Chapter 34

### MERGERS, ACQUISITIONS AND RESTRUCTURING

1. Global Infosystems Ltd. Company plans to acquire GCL Tech Ltd. The following information is available.

|                                    | Global<br>Infosystems | GCL Tech        |
|------------------------------------|-----------------------|-----------------|
| Total earnings, E                  | Rs. 2000 million      | Rs. 500 million |
| Number of outstanding shares,<br>S | Rs. 30 million        | Rs. 20 million  |
| Market price per share             | Rs. 800               | Rs. 250         |

- (i) What is the maximum exchange ratio acceptable to the shareholders of Global Infosystems if the PE ratio of combined entity is 14 and there is no synergy gain?
- (ii) What is the minimum exchange ratio acceptable to the shareholders of GCL Tech if the PE ratio of the combined entity is 20 and there is synergy benefit of 5 percent?
- (iii) Assuming that there is no synergy, at what level of PE multiple will the lines  $ER_1$  and  $ER_2$  intersect?
- (iv) Assume that there is an expected synergy gain of 8 percent. What exchange ratio will result in a post-merger EPS of Rs. 70?
- (v) Now assume that the merger is expected to generate gains which have a present value of Rs. 1000 million and the exchange ratio agreed to is 0.8. What is the true cost of the merger from the point of view of Global Infosystems?

2. Megasystems Ltd. plans to acquire Minitel Ltd. The following information is available.

|                                    | Megasystems<br>Ltd | Minitel Ltd     |
|------------------------------------|--------------------|-----------------|
| Total earnings, E                  | Rs. 8000 million   | Rs. 800 million |
| Number of outstanding shares,<br>S | Rs. 220 million    | Rs. 30 million  |
| Market price per share             | Rs. 400            | Rs. 180         |

- (i) What is the maximum exchange ratio acceptable to the shareholders of Megasystems Ltd if the PE ratio of combined entity is 11 and there is no synergy gain?
- (ii) What is the minimum exchange ratio acceptable to the shareholders of Minitel Ltd if the PE ratio of the combined entity is 15 and there is synergy benefit of 10 percent?
- (iii) Assuming that there is no synergy, at what level of PE multiple will the lines  $ER_1$  and  $ER_2$  intersect?
- (iv) Assume that there is an expected synergy gain of 5 percent. What exchange ratio will result in a post-merger EPS of Rs. 40?
- (v) Now assume that the merger is expected to generate gains which have a present value of Rs. 600 million and the exchange ratio agreed to is 0.6.

What is the true cost of the merger from the point of view of Megasystems Ltd?

3. Indsoft Systems Ltd. plans to acquire RK Tech Ltd. The following information is available.

|                                 | Indsoft Systems | RK Tech        |
|---------------------------------|-----------------|----------------|
| Total earnings, E               | Rs. 120 million | Rs. 80 million |
| Number of outstanding shares, S | Rs. 16 million  | Rs. 10 million |
| Market price per share          | Rs. 100         | Rs. 20         |

- (i) What is the maximum exchange ratio acceptable to the shareholders of Indsoft Systems if the PE ratio of combined entity is 10 and there is no synergy gain?
- (ii) What is the minimum exchange ratio acceptable to the shareholders of RK Tech if the PE ratio of the combined entity is 12 and there is synergy benefit of 6 percent?
- (iii) Assuming that there is no synergy, at what level of PE multiple will the lines  $ER_1$  and  $ER_2$  intersect?
- (iv) Assume that there is an expected synergy gain of 10 percent. What exchange ratio will result in a post-merger EPS of Rs. 10?
- (v) Now assume that the merger is expected to generate gains which have a present value of Rs. 80 million and the exchange ratio agreed to is 0.7. What is the true cost of the merger from the point of view of Indsoft Systems?

## Chapter 37

### INTERNATIONAL FINANCIAL MANAGEMENT

1. If the spot rate of the US dollar is Rs.63.00 and the three-month forward rate is Rs.63.50, what is the annualised forward premium on the dollar?
2. If the spot rate of the US dollar against Japanese yen is 119.00 and the six-month forward rate is Rs.121, what is the annualised forward premium on the dollar?
3. You have \$600 million to invest. You are considering deposits in the US or U.K. The US interest rate on 1-year deposit of this size is 0.85 per cent. The current spot rate is 1.5568 dollars per sterling pound. The rate of interest on a 1-year deposit of this size in U.K. is 1.20 per cent. What forward exchange rate will make you indifferent between investing in the US and depositing in the U.K.?
4. You have Rs.300,000 to invest. You are considering deposit in India or the US. The US interest rate on 1-year deposit of this size is 1.00 per cent while the rate for a one-year deposit in India is 7 per cent. The current spot rate is Rs.64 per dollar. What forward exchange rate will make you indifferent between investing in India and the US?

5. The exchange rate between US dollar and yen is as follows:

|                  |                       |
|------------------|-----------------------|
| Spot             | 119.00 yen per dollar |
| 30-day forwards  | 119.80 yen per dollar |
| 90-day forwards  | 121.60 yen per dollar |
| 180-day forwards | 124.30 yen per dollar |

Required: (a) What is the annual percentage premium/discount of the yen on the dollar?

(b) What is the most likely spot rate 3 months hence?

(c) If the interest on 6-month deposit in the US is 0.50 per cent (for 6 months), what is it likely to be in Japan?

6. The exchange rate between euro and Australian dollar (AUD) is as follows:

|                 |                    |
|-----------------|--------------------|
| Spot            | 1.4524 AUD per EUR |
| 30-day forwards | 1.4550 AUD per EUR |
| 90-day forwards | 1.4621 AUD per EUR |

Required: (a) What is the annual percentage premium of the euro on the AUD?

(b) What is the most likely spot rate 3 months hence?

(c) If the interest on 3-month deposit in Euro land is 0.8 per cent (for 3 months), what is it likely to be in Australia?

7. Sharma Corporation, an Indian company, is considering a project to be set up in US. The project will entail an initial outlay of USD 900 million and is expected to generate the following cash flow over its five year life:

| Year      | 1   | 2   | 3   | 4   | 5   |
|-----------|-----|-----|-----|-----|-----|
| Cash flow | 200 | 300 | 600 | 400 | 300 |

(in USD millions)

The current spot exchange rate is Rs.65.00 per US dollar, the risk-free rate in India is 7 per cent and the risk-free rate in the US is 1.1 per cent.

Sharma Corporation's required rupee return on a project of this kind is 25 per cent.

Calculate the NPV of the project using the home currency approach.

8. Salman Limited, an Indian company, is considering a project to be set up in US. The project will entail an initial outlay of USD 500 million and is expected to generate the following cash flow over its six year life:
- | Year      | 1   | 2   | 3   | 4   | 5   | 6   |
|-----------|-----|-----|-----|-----|-----|-----|
| Cash flow | 100 | 250 | 300 | 300 | 200 | 100 |
- (in USD millions)

The current spot exchange rate is Rs.64.80 per US dollar, the risk-free rate in India is 7.5 per cent and the risk-free rate in the US is 1.0 per cent.

Salman Limited's required rupee return on a project of this kind is 30 per cent.

Calculate the NPV of the project using the home currency approach.

9. The 90-day interest rate is 0.40 per cent in the U S and 0.60 per cent in U K and the current spot exchange rate is \$ 1.56/£. What will be the 90-day forward rate?
10. The 90-day interest rate is 0.25 per cent in the U S and 0.40 per cent in Euro land and the current spot exchange rate is \$ 0.8650/euro. What will be the 90-day forward rate?
11. The current spot rate for the British pound is Rs.96. The expected inflation rate is 5 per cent in India and 3 percent in U K. What is the expected spot rate of British pound a year hence?
12. The current spot rate for the euro is Rs.68. The expected inflation rate is 6 per cent in India and 4 per cent in Euro land. What is the expected spot rate of euro a year hence?
13. Suppose India and UK produce only one good, copper. Suppose the price of copper in India per unit is Rs.32, 000 and in the UK it is GBP 350.
- According to the law of one price, what should the British Pound: Rupee spot exchange rate be?
  - Suppose the price of copper over the next year is expected to rise is Rs.40, 000 in India and GBP 420 in the UK. What should the one year British Pound: Rupee forward rate be?
14. Suppose India and Singapore produce only one good, tin. Suppose the price of tin in India is Rs.9000 and in Singapore it is Singapore dollar 200.
- According to the law of one price, what should the Singapore dollar: Rupee spot exchange rate be?
  - Suppose the price of tin over the next year is expected to rise to Rs.11, 000 in India and \$ 280 in Singapore. What should the one-year Singapore dollar: Rupee forward rate be?

15. The inflation rate in US is expected to be 1.2 per cent per year, and the inflation rate in Japan is expected to be 0.6 per cent per year. If the current spot rate is 118 yen/\$ what will be the expected spot rate in 3 years?
16. The inflation rate in euro currency area is expected to be 3.0 percent per year, and the inflation rate in India is expected to be 5 per cent per year. If the current spot rate is Rs. 68 per euro what will be the expected spot rate in 2 years?
17. Suppose the spot rate between AUD and USD is 0.8700 USD per AUD. This is denoted as AUD/USD. The 90-day forward is 0.8780. U.S dollars can be lent or borrowed at a rate of 2% p.a, while the rate for AUD deposits or loans is 3.5 % p.a.  
How much risk-less profit can you make on a borrowing of 1000 USD.
18. Suppose the spot rate between USD and INR is 66.50 INR per USD. This is denoted as USD/INR. The 90-day forward is 68.20. Indian rupee can be lent or borrowed at a rate 7 % p.a. while the rate for USD deposits or loans is 1.2 % p.a.  
How much risk-less profit can you make on a borrowing of Rs. 100,000?
19. An Indian firm has a liability of £600,000 on account of purchases from a British supplier, which is payable after 180 days. The 180-day money market rate for deposits in UK is 2.7 per cent. What steps should the Indian firm take to do a money market hedge?
20. An Indian firm has a receivable of £200,000 on account of exports to a British firm, which is payable after 90 days. The 90-day money market borrowing rate in UK is 1.1 per cent. What steps should the Indian firm take to do a money market hedge?
21. Super Ltd has a short-term fund surplus of Rs.800 million. The funds can be parked for a 3-month period. The company observes the following rates in the market. Eurodollar 3 month LIBOR : 0.90 % p.a. ( This is the interest rate for a USD deposit)  
USD/ INR spot: 64.00/64.10  
  
USD/ INR 3months forward: 65.20/ 65.30  
  
If Super Ltd. parks its funds in the US dollar, what rupee rate of return will it finally get over the 3-month period, if covered forward?
22. Western Industries Ltd has a short- term fund surplus of Rs.180 million. The funds can be parked for a six-month period. The company observes the following rates in the market. Eurodollar 6 month LIBOR : 1.10 % p.a ( This is the interest rate for a USD deposit)  
USD/INR spot : 64.20/64.30  
  
USD/INR 6 month forward : 66.10/66.30  
  
If Western Industries parks its funds in the U.S dollar, what return will it finally get over the 6-month period, if covered forward?

23. A foreign exchange dealer in London normally quotes spot, one-month, and three-month forward. When you ask over the telephone for current quotations for the Japanese yen against the U.S. dollar, you hear:

120.40 / 50, 55 / 60, 75 / 80

- (i) What would you receive in dollars if you sold Yen 30,000,000 spot?
- (ii) What would it cost you to purchase JPY 50,000,000 forward three-months with dollars?

24. A foreign exchange dealer in London normally quotes spot, one-month and three-month forward. When you ask over the telephone for current quotations for the Japanese Yen against the US dollar, you hear

118.80/85, 50/55, 70/60

- (i) What would you receive in dollars if you sold Yen 10,000,000 spot?
- (ii) What would it cost you to purchase JPY 90,000,000 forward three-months with dollars?

25. Suppose an Indian firm has a 6-month payable of JPY 30 million. The market rates are as follows:

|           |         |          |   |           |
|-----------|---------|----------|---|-----------|
| Mumbai    | USD/INR | Spot     | : | 65.80/90  |
|           |         | 6-months | : | 66.20/30  |
| Singapore | USD/JPY | Spot     | : | 119.30/40 |
|           |         | 6-months | : | 121.20/30 |

If the firm buys JPY forward against INR, how much will it have to pay?

26. Suppose an Indian firm has a 3-month payable of JPY 50 million. The market rates are as follows:

|            |               |   |           |
|------------|---------------|---|-----------|
| Mumbai:    | USD/ INR spot | : | 65.20/30  |
|            | 3 months      | : | 66.20/35  |
| Singapore: | USD/ JPY spot | : | 119.20/30 |
|            | 3 months      | : | 122.40/55 |

If the firm buys JPY forward against INR, how much will it have to pay?

Chapter 40  
**CORPORATE RISK MANAGEMENT**

1. The historical relationship between two steel stocks, A and B has been as follows.

Percentage change in A =  $0.05 + 0.7$  (Percentage change in B)

If an investor owns Rs. 14 million of A, how should he create a zero value hedge?

2. **Risk Management** The historical relationship between two steel stocks, L and M has been as follows.

Percentage change in L =  $0.08 + 0.9$  (Percentage change in M)

If an investor owns Rs. 1.8 million of L, how should he create a zero value hedge?

3. **Risk Management** The historical relationship between two steel stocks, A and B has been as follows.

Percentage change in A =  $0.03 + 0.8$  (Percentage change in B)

If an investor owns Rs. 10 million of A, how should he create a zero value hedge?

