BUSINESS FINANCE DECISIONS
Suggested Answer
Final Examinations – Summer 2009

Ans.1 Conclusion:

Discounted net cash outflow (based on Rupees) in case of option 1 is lesser, hence the company should opt for LOCAL currency loan.

Option 1: Local Currency Loan

Installment	Principal			Interest rate [(KIBOR + 1.5%)/2)	Financial charges	Cash outflow	Discount @ 6.5% (13 ÷ 2)	Discounted cash flow
	Opening	Payment	Closing					
	--- Rupees in million ---				--- Rupees in million ---			--- Rs. in million ---
		A			B	A+B		
Jul-09		-			2,000 × 0.25% = 5	5	1.000	5.00
Jan-10	2,000	333	1,667	(13+1.5)/2=7.25%	2,000 × 7.25% = 145	478	0.939	448.84
Jul-10	1,667	334	1,333	(12.5+1.5)/2=7.00%	1,667 ×7% = 117	451	0.882	397.78
Jan-11	1,333	333	1,000	(12+1.5)/2=6.75%	1,333 × 6.75% = 90	423	0.828	350.24
Jul-11	1,000	333	667	(11.5+1.5)/2=6.50%	1,000 × 6.5% = 65	398	0.777	309.25
Jan-12	667	334	333	(11+1.5)/2=6.25%	667 × 6.25% = 42	376	0.730	274.48
Jul-12	333	333	-	(10.5+1.5)/2=6.00%	333 × 6.00% = 20	353	0.685	241.81
								PV 2,027.40

Option II: Foreign Currency Loan

Installment	Principal			Interest rate [(LIBOR + 2.5%)/2]	Interest amount	Net cash flow	Exchange rates (W-1)	Net cash flow	Discount @ 6.5% (13 ÷ 2)	Discounted cash flow
	Opening	Payment	Closing							
	£ in million				£ in million			Rs. in million		Rs. in million
Jul-09										
Jan-10	19.048	3.175	15.873	(5.00%+2.5%)/2=3.75%	0.714	(3.889)	109.10	424.290	0.939	398.408
Jul-10	15.873	3.175	12.698	(5.25%+2.5%)/2=3.88%	0.616	(3.791)	112.95	428.193	0.882	377.666
Jan-11	12.698	3.175	9.523	(5.5%+2.5%)/2=4.00%	0.508	(3.683)	116.52	429.143	0.828	355.330
Jul-11	9.523	3.175	6.348	(5.75%+2.5%)/2=4.13%	0.393	(3.568)	119.77	427.339	0.777	332.042
Jan-12	6.348	3.175	3.173	(6.00%+2.5%)/2=4.25%	0.270	(3.445)	122.68	422.633	0.730	308.522
Jul-12	3.173	3.173	-	(6.25%+2.5%)/2=4.38%	0.139	(3.312)	125.20	414.662	0.685	284.043
										PV 2,056.011

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W-1 : Forward rates

	Spot Rate (Rs. / £) at the beginning	6-month KIBOR	6-month LIBOR	Exchange Rate (Rs. / £) at the end
	Rs. / £			Rs.
Jul-09	105.00	6.5%	2.5%	109.10
Jan-10	109.10	6.25%	2.63%	112.95
Jul-10	112.95	6%	2.75%	116.52
Jan-11	116.52	5.75%	2.88%	119.77
Jul-11	119.77	5.5%	3%	122.68
Jan-12	122.68	5.25%	3.13%	125.20

$$\text{Conversion rate (Rs. / £)} = \text{Spot Rate Rs/£} \times \frac{1 + \text{Interest Rate (Pak)}}{1 + \text{Interest Rate (UK)}}$$

Ans.2 Option – 1: Overhaul and continue

(a)

Year	Cost of overhauling	Net Revenue	Residual value	Net cash flow	Discount rate @ 8.33% (W-1)	Net present value
	---------- Rupees ----------					--- Rupees ---
0	(2,200,000)		-	(2,200,000)	1.0000	(2,200,000)
1	-	*[1]3,600,000	-	3,600,000	0.9231	3,323,160
2	-	3,600,000	787,500	4,387,500	0.8521	3,738,589
						4,861,749

*[1] (2,000 × 0.94 – 440) × 2,500

Cum discount factor for two years (0.9231 + 0.8521) **1.7752**

Annual equivalent Net Present Value **Rs. 2,738,705**

Option – 2: Replacement

Year	Capital Cost	Net Revenue	Residual value	Net cash flow	Discount rate @ 8.33% (W-1)	Net present value Rs.
	----------Rupees----------					
0	*[1](4,305,000)		-	(4,305,000)	1.0000	(4,305,000)
1	-	*[2]3,700,000	-	3,700,000	0.9231	3,415,470
2	-	3,700,000	-	3,700,000	0.8521	3,152,770
3		3,700,000	1,312,500	5,012,500	0.7866	3,942,833
						6,206,073

*[1] 5,250,000 – 945,000 = 4,305,000
*[2] (2,000 × 0.94 – 400) × 2,500 = 3,700,000

Cum discount factor for three years (0.9231 + 0.8521 + 0.7866) **2.5618**

Annual equivalent Net Present Value **Rs. 2,422,544**

W – 1: Calculation of Real Rate for discounting

$$\text{Real Discount Rate} = \left[\frac{(1+\text{Nominal Discount Rate})}{(1+\text{Inflation Rate})}\right] - 1$$

$$= \left[\frac{1+17\%}{1+8\%}\right] - 1 = 8.33\%$$

Conclusion:
Since annual equivalent NPV of overhaul and continue option is higher, this equipment should be overhauled.

(b)

	Rupees
Total required NPV of replacement option (Rs. 2,422,544× 1.7752)	4,300,500
Less: NPV of overhauling and continue option	4,861,749
Difference	(561,249)

% change in overhauling cost at which management would be indifferent (Rs. 561,249 ÷ Rs. 2,200,000) 25.51%

Ans.3 Conclusion:

The best strategy for the company is:

- to square position in SPL shares at future price as it gives the highest return.**(Working I)**
- NOT to exercise option of DESC shares as it is clearly evident from the available data that both purchasing at spot or future rate will result in more loss to the company.

Working I

Option – 1: Computation of gain/ loss if shares are squared on SPOT rate

	SPL
	Rupees
Sale proceed	
(Rs. 170 x 100,000)	17,000,000
Less: Cost of acquisition	
(Rs. 155 x 100,000)	(15,500,000)
Gain/ (loss) if option exercises	1,500,000

Option 2: Computation of gain/ loss if shares are squared on Future rate

	SPL
	Rupees
Sale proceed	
(Rs. 173 × 100,000)	17,300,000
Less: Cost of acquisition	
(Rs. 155 × 100,000)	(15,500,000)
Gain/ (loss) if option exercises	1,800,000

Present Value of the gain (1/1.0121 * 1,800,000) 1,778,480

Ans.4

	Merger with PQ		**Merger with RS**
	Rupees in million		
Investment required to be made (W – 1)	**848.00**		**1,888.75**
Net profit after tax	124.80		169.00
Synergy impact (W-5)	37.05		47.39
	161.85		216.39
Return on investment	**19.09%**		**11.46%**

Conclusion:

By acquiring PQ (Pvt.) Ltd., the shareholders of MNO Chemicals will earn a higher return on investment as compared to the acquisition of RS. Hence, acquisition of PQ is financially feasible for the shareholders of MNO Chemicals.

W – 1: Value of equity i.e. investment required to be made by MNO

PQ		**RS**
Rupees in million		

Total value of the company (W – 2)	1,248.00		2,388.75
Less: Value of TFCs	(400.00)		(500.00)
Value of equity i.e. investment to be made by MNO	848.00		1,888.75

W-2: Total value of company

$$\frac{Y_o \text{ x } (1+g)}{Re - g}$$

$$\text{Total Value of PQ (Pvt.) Ltd.} = \frac{156\ (W-3) \text{ x } (1+4\%)}{17\%\ \ (W-4) - 4\%} = 1{,}248$$

$$\text{Total Value of RS Ltd.} = \frac{204.75\ (W-3) \text{ x } (1+5\%)}{14\%\ (W-4) - 5\%} = 2{,}388.75$$

W-3: Maintainable earnings (Y_o)	**PQ**		**RS**
	Rupees in million		
Net profit after tax	124.80		169.00
Add Interest (PQ : 48 × 0.65) (RS : 55 × 0.65)	31.20		35.75
Maintainable earnings	156.00		204.75

W-4: Cost of equity (Re)

Re = Rf + (Rm – Rf)β

Cost of equity of RS = 8% + (13% – 8%) x 1.2 = 14%

Cost of equity of PQ (Pvt.) Ltd. = Re of RS Ltd. + Illiquidity premium 14% + 3% = 17%

W-5 Synergy Impact	**PQ**		**RS**
	Rupees in million		
Net profit after tax of MNO	585.00		585.00
Maintainable earnings of PQ (W – 3)	156.00		
Maintainable earnings of RS (W – 3)			204.75
Combined profit of merged entities	741.00		789.75
Synergies impact on profitability	5%		6%
Synergy impact	**37.05**		**47.39**

Ans.5 Advise:

Debt ratio of 40% is the optimal debt structure as at this level the WACC is at the lowest.

Weighted Average Cost of Capital (WACC)

	Debt ratios			
	0%	**10%**	**40%**	**50%**
Wd	0.00%	10.00%	40.00%	50.00%
Kd	0.00%	8.00%	10.00%	12.00%
We	100.00%	90.00%	60.00%	50.00%
Ke (**Working 1**)	10.80%	11.20%	12.00%	12.80%
Tax	35.00%	35.00%	35.00%	35.00%
WACC = WdKd (1-t) + WeKe	10.80%	10.60%	**9.80%**	10.30%

Working 1: Cost of equity

	Debt ratios			
	0%	**10%**	**40%**	**50%**
Beta	1.20	1.30	1.50	1.70
Rf	6.00%	6.00%	6.00%	6.00%

Rm	10.00%	10.00%	10.00%	10.00%
Re = Rf + β(Rm - Rf)	**10.80%**	**11.20%**	**12.00%**	**12.80%**

Ans.6

Selling Price	No. of subscribers in million	Probability	Airtime minutes	Probability	Expected incremental revenue	Cost of cell sites	Expected incremental Costs	Expected incremental earnings
					----------Rupees in million----------			
A	B	C	D	E	AxBxCxDxE	H	HxCxE	ETR - ECOS
0.75	0.7	0.3	1,600	0.6	151	300	54	97
	0.7	0.3	1,800	0.4	113	300	36	77
	0.8	0.5	1,600	0.6	288	300	90	198
	0.8	0.5	1,800	0.4	216	300	60	156
	0.9	0.2	1,600	0.6	130	540	65	65
	0.9	0.2	1,800	0.4	97	540	43	54
					995		348	647
1.00	0.5	0.3	1,600	0.6	144	180	32	112
	0.5	0.3	1,800	0.4	108	180	22	86
	0.6	0.5	1,600	0.6	288	300	90	198
	0.6	0.5	1,800	0.4	216	300	60	156
	0.8	0.2	1,600	0.6	154	300	36	118
	0.8	0.2	1,800	0.4	115	300	24	91
					1,025		264	761
1.25	0.3	0.3	1,600	0.6	108	180	32	76
	0.3	0.3	1,800	0.4	81	180	22	59
	0.4	0.5	1,600	0.6	240	180	54	186
	0.4	0.5	1,800	0.4	180	180	36	144
	0.6	0.2	1,600	0.6	144	300	36	108
	0.6	0.2	1,800	0.4	108	300	24	84
					861		204	657

Conclusion:
Tariff of Re. 1 is most suitable because it gives the highest value of pay off.

(The End)