



CHARTERED ACCOUNTANTS EXAMINATIONS

PROFESSIONAL LEVEL

P3: STRATEGIC FINANCIAL MANAGEMENT

FRIDAY 19TH DECEMBER 2014

TOTAL MARKS – 100; TIME ALLOWED: THREE (3) HOURS

INSTRUCTIONS TO CANDIDATES

1. You have fifteen (15) minutes reading time. Use it to study the examination paper carefully so that you understand what to do in each question. You will be told when to start writing.
2. This paper is divided into TWO sections:
Section A: One (1) compulsory question.
Section B: Four (4) Optional Questions. Attempt any three (3) questions.
3. Enter your student number and your National Registration Card number on the front of the answer booklet. Your name must **NOT** appear anywhere on your answer booklet.
4. Do **NOT** write in pencil (except for graphs and diagrams).
5. The marks shown against the requirement(s) for each question should be taken as an indication of the expected length and depth of the answer.
6. All workings must be done in the answer booklet.
7. Formulae, Present Value, Annuity and normal distribution tables are attached at the end of the question paper.
8. Graph paper (if required) is provided at the end of the answer booklet.

SECTION A

Attempt this one compulsory question.

QUESTION ONE

Chama PLC is a company which supplies water in some parts of Lusaka province. The company currently purifies its water using chlorine. The government authority has requested the company to consider improving on the water purification process to avoid water borne related diseases which has been reported in the recent past. Chama PLC is now considering to invest in a new type of water purification process. The alternatives are using a technology called BiG or a new efficient technology called Ultra P.

Whichever technology is chosen, operations are scheduled to commence after two years and both types of technology expect to generate annual revenues at current prices of K1,100 million. Under both technologies, part of the existing plant would need to be demolished at a total cost of K30 million payable in two annual instalments in year two and three. Below are the financial estimates under both technologies at current prices:

	BiG	Ultra P
	K'Million	K'Million
Noncurrent assets	1,500	3,200
Annual operational costs:		
Water purification chemicals	302	200
Labour costs	350	100
Sales & marketing expenses	50	60
Interest costs	10	15
Other cash expenses	55	60

Under both technologies, 25% of the noncurrent assets represents building costs which are payable in two annual equal instalment in one and two years' time. Building costs does not attract capital allowances which are applicable to other noncurrent assets on a straight line basis. Expenditure on other non-current assets will be incurred at the end of year two. If technology BiG is selected 10% of the existing work force will be made redundant at an after tax cost of K150 million. If technology Ultra P is selected 15% of the existing work force will be redundant at an after tax cost of K200 million. Redundancy costs are payable in the year of commence of project operations. The expected operating life of both technologies (Projects) is 13 years after which new major investment will be required.

Both projects would be financed by Eurobond issue. The yield to maturity of an appropriate bond and the relevant credit risk premium for a company of Chama Plc credit rating in the Euro market is shown below:

	Yield to maturity		Credit risk premium (<i>basis point</i>)	
	8 years	10 years	8 years	10 years
Bond (BiG)	6.5%	-	150	-
Bond (Ultra P)	-	7.5%	-	200

Other Information:

- (i) The company equity beta is expected to be 0.65 if technology BiG is selected and 1.1 if technology Ultra P is selected. The gearing (debt to equity plus debt) is expected to be 30% with technology BiG and 45% with technology Ultra P. The equity premium is 8%.
- (ii) The risk free rate is 6.2% per year and the general inflation rate is 4.6% in Zambia. Corporation tax is 15% and payable in the same year that the liability arises.
- (iii) The cost for the feasibility studies for both technologies amounted to K0.9 million.
- (iv) Assume that all cash flows occur at the end of each relevant year.

Required:

- (a) Using the real cost of capital estimate the NPV of each alternative investment. (25 marks)

Note: It is highly recommended that annuity tables are used wherever possible.

- (b) Assuming the role of the Financial Manager of Chama Plc, write a brief report to the management recommending the technology that should be adopted on financial grounds and discussing other information that might assist the decision making process. (10 marks)
- (c) Clearly describe the Eurobond and steps that are followed when issuing it. (5 marks)

[Total: 40 marks]

SECTION B

Attempt any Three (3) questions out of four (4) in this section.

QUESTION TWO

Mapolly PLC, a furniture manufacturing company is currently considering a takeover bid for a competitor Rango Ltd. Mapolly PLC has 100 million issued ordinary shares while Rango PLC has 40 million. Recent market reports have shown that the share price of Rango Plc has fallen by 150 ngwee during the last four months. The share prices of Mapolly PLC and Rango Ltd is K4 per share and K5.2 per share respectively. The latest financial report indicated that Rango made an after tax profit of K65 million. The following projected financial information for Rango PLC if it is taken over was produced by the finance subcommittee tasked to oversee a successful takeover.

Year	1	2	3	4
	K'm	K'm	K'm	K'm
Sales	500	591	632	646
Cost of sales	245	256	298	307
Other cash expenses	56	59	65	68
Capital allowances	60	48	43	161
Depreciation	20	23	27	25
Asset replacement costs	80	93	107	115

The market value of debt for Rango Ltd is K400 million and the total book value of assets is K700 million. The P/E ratio of quoted competitors of Rango Ltd is on average 14:1 and the realisable value of Rango's assets is estimated to be 75% of total assets book value.

Mapolly Plc has a 10% redeemable bond with fours to maturity with a par value of K100 and a current market price of K112.5. The bond is redeemable at 10% premium. The current equity beta for Rango Ltd is 1.1 and this is expected to increase by 0.2 if the company is taken over as Mapolly PLC. The gearing is expected to be 25% (debt to debt plus equity by market value) post acquisition. Post-takeover cash flows after asset replacement costs of the Target are expected to grow at 6% per year after year four. The risk free rate is 5% per year and the excess return is 8%. Corporate tax is 30% per year and its payable in the year that taxable cash flows arises.

Required:

- Estimate the range of prices that Mapolly PLC should offer to purchase the shares of Rango Ltd. (16 marks)
- Demerger is one of the main forms of unbundling a company. Provide four disadvantages of a demerger. (4 marks)

[Total: 20 marks]

QUESTION THREE

Eunike Inc is considering investing in an expansion project of its bicycle manufacturing plant amounting to K150 million. The expected operational period for the project is five years after which a new major investment will be required. Approximately 50% of this amount is payable immediately and the remainder will be paid in two annual equal installments in year one and two. Production and selling will commence in year two. It is expected that 150,000 units will be produced and sold annually. Eunike Inc expects to start paying dividends to its shareholders after the investment as follows:

Year	1	2	3	4
Dividends	50	55	58	60

The projected contribution per unit as of year two is K300 which is expected to increase in line with the expected dividend growth rate. The minimum expected return by shareholders is 12%. Incremental fixed costs are insignificant. Ignore taxation.

Required:

- (a) Using the Modified Internal Rate of Return (MIRR), determine whether the expansion project is viable. (14 marks)
- (b) Discuss the reasons why a company might pay dividends of less than the free cash flow to equity. (6 marks)

[Total: 20 marks]

QUESTION FOUR

- (a) Treasury management in a large company covers several areas including funding management, liquidity management, currency management and corporate finance.

Required:

- (i) Outline seven (7) benefits of having a separate centralized treasury department. (7 marks)
 - (ii) Describe three (3) areas covered by the funding management aspect of the treasury.
- (b) Mukuwa Enterprises is considering investing in a bond with a face value of K80. The recovery rate of the bond is 30% and the probability of default is 5%.

Required:

Calculate Mukuwa Enterprise's expected loss from credit risk. (4 marks)

- (c) Amandla plc needs to borrow K100,000 for four months starting on 1st January and would like to minimize the risk of loss from possible changes in interest rates.

The company approaches its bank to negotiate a forward rate agreement with the following terms;

Borrowing	Lending	Starting	Ending
3%	2%	1 January	30 April

The current market rates of interest are:

Borrowing rate	Lending rate
4%	3%

Required:

Advise Amandla PLC, the likely interest payable if on 1st January, the market rates for borrowing and lending are;

- (i) 20% higher than the current rates (3 marks)
- (ii) 40% lower than the current rates (3 marks)

[Total: 20 marks]

QUESTION FIVE

Wise Plc is a South African multinational company which is proposing to establish a mine in one of the African countries. The mine would be located on an occupied land. The company is involved in the mining of precious mineral resources and subsequently sale to the developed countries. In one of the recent meeting, the Board chairman of Wise Plc expressed concern over the foreign currency risk exposure and suggested the use of forward rate agreement and interest rate swap as hedging instruments.

Required:

- (a) In relation to Wise Plc's possible investment a foreign subsidiary, discuss political risk and provide two (2) ways on how it might be managed. (8 marks)
- (b) Explain clearly the differences and similarities between forward rate agreement and interest rate swap. (6 marks)
- (c) Identify three (3) other key stakeholders besides the shareholders to the proposed establishment of a Mine in a foreign country and briefly discuss their interests. (6 marks)

[Total: 20 marks]

END OF PAPER

Modified Internal Rate of Return

$$MIRR = \left[\frac{PV_R}{PV_I} \right]^{\frac{1}{n}} (1 + r_e) - 1$$

The Black-Scholes option pricing model

$$c = P_a N(d_1) - P_e N(d_2) e^{-rt}$$

Where:

$$d_1 = \frac{\ln(P_a / P_e) + (r + 0.5s^2)t}{s\sqrt{t}}$$

$$d_2 = d_1 - s\sqrt{t}$$

The Put Call Parity relationship

$$p = c - P_a + P_e e^{-rt}$$

Present Value Table

Present value of 1 i.e. $(1 + r)^{-n}$

Where r = discount rate
 n = number of periods until payment

Periods (n)	Discount rate (r)										
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	1
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	2
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	3
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683	4
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621	5
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564	6
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513	7
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467	8
9	0.941	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424	9
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386	10
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.305	11
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319	12
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290	13
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263	14
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239	15
(n)	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833	1
2	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694	2
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579	3
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482	4
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402	5
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335	6
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279	7
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233	8
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194	9
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162	10
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135	11
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112	12
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093	13
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078	14
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.074	0.065	15

Annuity Table

Present value of an annuity of 1 i.e. $\frac{1 - (1 + r)^{-n}}{r}$

Where r = discount rate
 n = number of periods

		<i>Discount rate (r)</i>										
<i>Periods</i>		1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	
(n)												
1		0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	1
2		1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736	2
3		2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487	3
4		3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170	4
5		4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791	5
6		5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355	6
7		6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868	7
8		7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335	8
9		8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759	9
10		9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145	10
11		10.37	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495	11
12		11.26	10.58	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814	12
13		12.13	11.35	10.63	9.986	9.394	8.853	8.358	7.904	7.487	7.103	13
14		13.00	12.11	11.30	10.56	9.899	9.295	8.745	8.244	7.786	7.367	14
15		13.87	12.85	11.94	11.12	10.38	9.712	9.108	8.559	8.061	7.606	15
(n)		11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	
1		0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833	1
2		1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528	2
3		2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106	3
4		3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589	4
5		3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991	5
6		4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326	6
7		4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605	7
8		5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837	8
9		5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031	9
10		5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192	10
11		6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327	11
12		6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439	12
13		6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533	13
14		6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611	14
15		7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675	15

Standard normal distribution table

	0-00	0-01	0-02	0-03	0-04	0-05	0-06	0-07	0-08	0-09
0-0	0-0000	0-0040	0-0080	0-0120	0-0160	0-0199	0-0239	0-0279	0-0319	0-0359
0-1	0-0398	0-0438	0-0478	0-0517	0-0557	0-0596	0-0636	0-0675	0-0714	0-0753
0-2	0-0793	0-0832	0-0871	0-0910	0-0948	0-0987	0-1026	0-1064	0-1103	0-1141
0-3	0-1179	0-1217	0-1255	0-1293	0-1331	0-1368	0-1406	0-1443	0-1480	0-1517
0-4	0-1554	0-1591	0-1628	0-1664	0-1700	0-1736	0-1772	0-1808	0-1844	0-1879
0-5	0-1915	0-1950	0-1985	0-2019	0-2054	0-2088	0-2123	0-2157	0-2190	0-2224
0-6	0-2257	0-2291	0-2324	0-2357	0-2389	0-2422	0-2454	0-2486	0-2517	0-2549
0-7	0-2580	0-2611	0-2642	0-2673	0-2704	0-2734	0-2764	0-2794	0-2823	0-2852
0-8	0-2881	0-2910	0-2939	0-2967	0-2995	0-3023	0-3051	0-3078	0-3106	0-3133
0-9	0-3159	0-3186	0-3212	0-3238	0-3264	0-3289	0-3315	0-3340	0-3365	0-3389
1-0	0-3413	0-3438	0-3461	0-3485	0-3508	0-3531	0-3554	0-3577	0-3599	0-3621
1-1	0-3643	0-3665	0-3686	0-3708	0-3729	0-3749	0-3770	0-3790	0-3810	0-3830
1-2	0-3849	0-3869	0-3888	0-3907	0-3925	0-3944	0-3962	0-3980	0-3997	0-4015
1-3	0-4032	0-4049	0-4066	0-4082	0-4099	0-4115	0-4131	0-4147	0-4162	0-4177
1-4	0-4192	0-4207	0-4222	0-4236	0-4251	0-4265	0-4279	0-4292	0-4306	0-4319
1-5	0-4332	0-4345	0-4357	0-4370	0-4382	0-4394	0-4406	0-4418	0-4429	0-4441
1-6	0-4452	0-4463	0-4474	0-4484	0-4495	0-4505	0-4515	0-4525	0-4535	0-4545
1-7	0-4554	0-4564	0-4573	0-4582	0-4591	0-4599	0-4608	0-4616	0-4625	0-4633
1-8	0-4641	0-4649	0-4656	0-4664	0-4671	0-4678	0-4686	0-4693	0-4699	0-4706
1-9	0-4713	0-4719	0-4726	0-4732	0-4738	0-4744	0-4750	0-4756	0-4761	0-4767
2-0	0-4772	0-4778	0-4783	0-4788	0-4793	0-4798	0-4803	0-4808	0-4812	0-4817
2-1	0-4821	0-4826	0-4830	0-4834	0-4838	0-4842	0-4846	0-4850	0-4854	0-4857
2-2	0-4861	0-4864	0-4868	0-4871	0-4875	0-4878	0-4881	0-4884	0-4887	0-4890
2-3	0-4893	0-4896	0-4898	0-4901	0-4904	0-4906	0-4909	0-4911	0-4913	0-4916
2-4	0-4918	0-4920	0-4922	0-4925	0-4927	0-4929	0-4931	0-4932	0-4934	0-4936
2-5	0-4938	0-4940	0-4941	0-4943	0-4945	0-4946	0-4948	0-4949	0-4951	0-4952
2-6	0-4953	0-4955	0-4956	0-4957	0-4959	0-4960	0-4961	0-4962	0-4963	0-4964
2-7	0-4965	0-4966	0-4967	0-4968	0-4969	0-4970	0-4971	0-4972	0-4973	0-4974
2-8	0-4974	0-4975	0-4976	0-4977	0-4977	0-4978	0-4979	0-4979	0-4980	0-4981
2-9	0-4981	0-4982	0-4982	0-4983	0-4984	0-4984	0-4985	0-4985	0-4986	0-4986
3-0	0-4987	0-4987	0-4987	0-4988	0-4988	0-4989	0-4989	0-4989	0-4990	0-4990

This table can be used to calculate $N(d)$, the cumulative normal distribution functions needed for the Black-Scholes model of option pricing. If $d_j > 0$, add 0.5 to the relevant number above. If $d_j < 0$, subtract the relevant number above from 0.5.

P3 SUGGESTED SOLUTIONS

SOLUTION ONE

a)

Project Evaluation

	BiG	Ultra P
Profit after tax (W.1)	2,484.30	4,219.40
Capital allowances (W.5)	110.6	202.14
Redundancy costs (W.6)	(129.6)	(163.2)
Demolition costs (W.7)	(26.57)	(25.34)
Building costs (W.4)	(348.56)	(723.2)
Other non-current assets (W.4)	<u>(1,020.34)</u>	<u>(2,400)</u>
Net Present values	<u>1,069.83</u>	<u>1,109.8</u>

Workings

1. Profit after tax:

	BiG	Ultra P
	K'million	K'million
Revenue	1,100	1,100
Water & purification chemicals (302)		(200)
Labour costs	(350)	(100)
Sales & Marketing expenses (50)		(60)
Other cash expenses	<u>(55)</u>	<u>(60)</u>
Taxable profits	343	680
Tax@15%	<u>(51.45)</u>	<u>(102)</u>
Profits after tax	291.55	578
Annuity factor	<u>8.52</u>	<u>7.30</u>

Present values 2,484.30 4,219.4

2. Cost of Capital

BiG

Cost of equity= 6.2% + 0.65(8%)

$$= 11.4\%$$

Cost of debt= 6.5% + 1.5% =8%

$$= 8\% \times (0.85)$$

$$= 6.8\%$$

WACC= 11.4% X 0.7 + 6.8% X 0.3

$$= 10\%$$

Real Cost of Capital = $(1.1/1.046) - 1$

$$= 5\%$$

Ultra P

Cost of equity = 6.2% + 1.1(8%)

$$=15.3\%$$

Cost of debt = 7.5% + 2% = 9.5%

$$= 9.5\% \times (0.85) = 8.075\%$$

WACC= 15.3% X 0.55 + 8.075% X 0.45

$$=12\%$$

Real Cost of Capital= $(1.12/1.046) - 1$

$$=7\%$$

3. Annuity for the period 2year to 15 years

BiG (5%) = 10.38 – 1.859= 8.521

Ultra P (7%) = 9.108- 1.808 =7.3

4. Building costs

BiG =(K1,500 X 0.25 /2) X 1.859= K348.56million

$$\text{Ultra P} = (\text{K}3,200 \times 0.25/2) \times 1.808 = \text{K}723.2\text{million}$$

Other noncurrent assets:

$$\text{BiG} = (1500 \times 75\%) \times 0.907 = \text{K}1,020.34\text{million}$$

$$\text{Ultra P} = (3,200 \times 75\%) \times 0.873 = \text{K}2,400\text{million}$$

5. Capital allowances:

$$\text{BiG tax savings} = (\text{K}1500 \times 75\%)/13 = \text{K}86.5 \times 15\% = \text{K}12.98\text{million}$$

$$= \text{K}12.98\text{million} \times 8.521 = \text{K}110.6\text{million}$$

$$\text{Ultra P tax savings} = (\text{K}3,200 \times 75\%)/13 = \text{K}184.6 \times 15\% = \text{K}27.69\text{million}$$

$$= \text{K}27.69\text{million} \times 7.3 = \text{K}202.14\text{million}$$

6. Redundancy costs

$$\text{BiG} = \text{K}150\text{m} \times 0.864 = \text{K}129.6\text{million}$$

$$\text{Ultra P} = \text{K}200\text{m} \times 0.816 = \text{K}163.2\text{million}$$

7. Demolition cost:

BiG

Year	2	3
Cash flow	15	15
Discount@5%	0.907	0.864
PV of cost	13.605	12.96

Total PV of costs = K26.57million

Ultra P

Year	2	3
Cash flow	15	15
Discount@7%	0.873	0.816
PV of cost	13.095	12.24

Total PV of costs = K25.34million

b)

To : Management

From : Financial Manager

Date : 2014

Subject : EVALUATION OF INVESTMENT IN THE WATER PURIFICATION PROCESS

This report highlights the information both financial and non financial that might assist in making the decision to invest in the water purification process as requested by management.

Financial Information

Based on the Net present values of both technologies, Ultra P gives a higher NPV of K1, 109.8million compared to BiG which gives K1, 069.83million and therefore Ultra P should be undertaken. However, management should also consider other non financial information that might be critical to making the decision and this is discussed below:

Non financial information

1. Risk of New technology

It would be useful to obtain information from companies or countries that used these technologies to assess their effectiveness in terms of safety of the water. The new chemicals used in both technologies may not be approved in Zambia and therefore it would critical to obtain such information.

2. Accuracy of variables

The accuracy of the cash flow estimates should be investigated in more depth. This may alter the decision more especially that there is just a minor difference in terms of the NPV of both projects.

3. Range of NPV

Estimates should be produced of a range of NPVs (under both technologies) based upon different assumptions to ensure that an appropriate technology is selected. Techniques such as sensitivity analysis and simulation analysis might be useful in this process.

Please do not hesitate to contact the undersigned for any clarification.

Signed

- c) Eurobonds are long term loans raised by international companies or other institutions and sold to investors in several countries at the same time. Eurobonds are normally repaid after 5-15 years, and are for major amounts of capital.

Below are the steps followed in issuing Eurobonds

1. A lead manager is appointed from a major merchant bank; the lead manager liaises with the credit rating agencies and organises a credit rating of the Eurobond
2. The lead manager organises an underwriting syndicate (of other merchant banks) who agree the terms of the bond (e.g. interest rate, maturity date) and buy the bond.
3. The underwriting syndicate then organise the sale of the bond ; this normally involves placing the bond with institutional investors.

SOLUTION TWO

a)

FREE CASH FLOW VALUATION

YEAR	1	2	3	4
	K'm	K'm	K'm	K'm
Sales	500	591	632	646
Cost of sales	-245	-256	-298	-307
Other cash expenses	-56	-59	-65	-68
Capital allowances	-60	-48	-43	-161
Taxable cash flows	139	228	226	110
Tax@30%	-41.7	-68.4	-67.8	-33
Add: Capital allowances	60	48	43	161
Asset replacement costs	-80	-93	-107	-115
Free Cash flows	77.3	114.6	94.2	123
Discount@13%	0.885	0.783	0.693	0.613
	68.41	89.73	65.28	75.40
Total PV	298.82			

$$FCF = 123(1.06)/0.13 - 0.06 = 1,862.57$$

$$= 1,862.57 \times 0.613$$

$$= K1,141.76 \text{ million}$$

$$\text{Total value of company} = K1,141.76\text{m} + K298.57\text{m} = K1,440.33\text{m}$$

$$\text{Value of equity} = K1,440.33\text{m} - K400\text{m} = K1,040.33\text{million}$$

$$\text{Net asset valuation} = K700\text{m} \times 75\% = K525\text{million}$$

P/E ratio valuation = K65million x 14 = K910million

WORKINGS

Cost of capital

Cost of equity= 5% + 1.3(8%) = 15.4%

Cost of debt

Year		Cash flows	Dis@10%	PV	Dis@5%	PV
0	MV	(112.5)	1.000	(112.5)	1.000	(112.5)
1-4	Interest	7	3.170	22.19	3.546	24.82
4	Redemption	110	0.683	<u>75.13</u>	0.823	<u>90.53</u>
	NPV			<u>(14.98)</u>		<u>3.05</u>

Cost of debt= 5% + 3.05/3.05+14.98 x (10%-5%)
= 5.85%

WACC= 15.4% x 0.75 + 5.85% x 0.25
= 13%

b)

- i) Economies of scale may be lost, where the demerged parts of the business had operations in common to which economies of scale applied
- ii) The smaller companies which results from the demerger will have lower turnover, profits and status than the group before the demerger.
- iii) Vulnerability to takeover may be increased. The impact on a firm's risk maybe significant when a substantial part of a company is spun off.
- iv) The ability to raise extra finance, especially debt finance, to support new investments and expansion may be reduced.

SOLUTION THREE

a)

Present of investment phase

Year	0	1	2
	K'm	K'm	K'm
Initial cost	75	37.5	37.5
Discount@12%	<u>1.000</u>	<u>0.893</u>	<u>0.797</u>
Present value	75	33.49	29.89

Total PV= K138.38m

Present value of the return phase

Year	1	2	3	4	5	6
	K'm	K'm	K'm	K'm	K'm	K'm
Contribution	-	45	47.7	50.55	53.55	56.85
Discount@12%	-	<u>0.797</u>	<u>0.712</u>	<u>0.636</u>	<u>0.567</u>	<u>0.507</u>
Present value	-	35.87	33.96	32.15	30.36	28.82

Total PV = K161.07

$$\text{MIRR} = 5\sqrt[5]{(161.07/138.38)} \times (1+0.12) - 1 = 15.45\%$$

The project is viable considering that the MIRR is more than the minimum expected return of 12%.

Working

Year	1	2	3	4	5	6
Contribution per unit	-	300	318	337	357	379
Units ('000)	-	<u>150</u>	<u>150</u>	<u>150</u>	<u>150</u>	<u>150</u>
Contribution (K'm)		45	47.7	50.55	53.55	56.85

$$G=3\sqrt{(60/50)} - 1 = 6\%$$

- b) Free cash flow to equity is the funds that remain after the company has undertaken all capital investments expenditure any changes in non-cash working capital and debt issues and redemption. It is effectively the amount left for investors after the company has met all other needs and could be paid to shareholders as dividends.

A company might decide to pay dividend of less than the free cash flow to equity because;

- i) The company might wish to maintain a precautionary cash balance to meet unanticipated needs.
- ii) The company's earnings and cash flows are volatile and cash is to be used to smooth out dividends.
- iii) The company may have a strategy of increasing cash reserves for a specific purpose such acquisition or a major expansion.
- iv) There may be legal constraints such as covenants that prevent the return of cash to shareholders.

SOLUTION FOUR

(a) (i)

1) Avoids having a mix of cash surpluses and over drafts in different local bank accounts and facilitates bulk cash flows, so that lower bank charges can be negotiated.

(2) Larger volumes of cash are available to invest giving better short term investment opportunities (e.g. money market deposits, high interest accounts and CDs)

(3) Any borrowing can be arranged in bulk at lower interest rates than for smaller borrowings and perhaps on the euro currency or euro bond market s

(4), foreign currency risk management is likely to be improved in a group of companies. A central treasury department can match foreign currency income earned by one subsidiary with expenditure in the same currency by another subsidiary. In this way the risk of loses on adverse exchange rate changes can be avoided without the expense of forward exchange controls or other hedging methods.

(5) A specialist treasury department will employ experts with knowledge of dealing in futures, euro currency markets, taxation, and transfer prices and so on. Localized departments would not have such expertise.

(6) The centralized pool of funds required for precaution purposes will be smaller than the sum of separate precautionary balances which would need to be held under decentralized treasury arrangements.

(7) Through having a separate profit centre, attention will be focused on the contribution to group profit performance that can be achieved by good cash, funding, investment and foreign currency management.

(8), centralization provides a means of exercising better control through use of standardized procedures and risk monitoring. Standardized practices and performance measures can also create productivity benefits.

ii) The funding management aspect of the treasury covers the following;

(1) Borrowing

This covers issues such as the cost of the funds, the security required by the lender and the length of borrowing.

(2) Sources of funds

This covers aspects such as the type of financing arrangements best suited to the company e.g. to obtain a bank loan or to issue debentures or ordinary shares, preference shares or lease financing.

(3) Funding policies and procedures

This covers the policy and procedure set by the company for obtaining funds and the company's guiding principles e.g. Maximum cost of funds acceptable, redeemable or not and steps for obtaining funds.

(b) Loss given default = K 80 – k 24 (0.3 x 80) = K 56

The expected loss = PD X LGD

= 0.05 x K 56

= K 2.8

principal. This could help prevent the foreign governments taking negative actions due to the implications on the local bank.

b) Forward rate agreement and interest rate swap

An FRA could be described as a single- period interest rate swap. In an interest rate swap, two parties agree to exchange interest payments on an underlying notional principal amount. With a coupon swap, one party might pay Interbank offered rate and receive a fixed rate (the swap rate) and the other party will pay the fixed rate and receive Interbank offered rate.

There are some differences between a swap and an FRA

- i) A swap is long term agreement, whereas an FRA is an agreement over a shorter period of time. However, a company can arrange to buy or sell a strip of FRA's covering up to about two years.
- ii) With a swap, the interest payment dates for the two parties do not have to coincide.
- iii) With a swap, the settlement of payments is usually at the end of the notional interest periods, rather than at the beginning.

a)

i) The Local communities in both countries: They would be interested in the employment in order to earn a living. The local community may also be affected by possible relocation to allow the development of mines. Those will be living near the mines, might be exposed to noise as well as possible pollution.

ii) The government: The government is interested in the level of employment for the local community and revenue in form of tax e.g. PAYE, VAT. However, the government will also be concerned with the level pollution to the environment and the safety of the workers.

- iv) Various Local suppliers: The local suppliers would be interested in the contracts to be supplying the mines with various goods and services. However, Wise ltd might prefer foreign supplier to local ones which might raise concerns.

END OF SUGGESTED SOLUTIONS