CIMA INTERIM ASSESSMENT

Financial Strategy

November 2011

Paper F3

Time allowed
Reading and planning: 10 minutes
Writing: 1½ hours

Both questions are compulsory and MUST be attempted.

Mathematical tables and formulae are on pages 5 – 10

Do NOT open this paper until instructed by the supervisor.

During reading and planning time only the question paper may be annotated. You must NOT write in your answer booklet until instructed by the supervisor.

This question paper must not be removed from the examination hall.

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BOTH QUESTIONS ARE COMPULSORY

QUESTION 1

Squire and Marr Ltd ("SAM") is a UK based guitar making company, which manufactures a small range of mid quality instruments. It sells the guitars to a small number of retail outlets around Europe, and has a good relationship with its customers.

A recent article in a music manufacturers' trade magazine suggested that fears over recession and the current credit crunch will result in greater competition in the mid-price sector.

SAM is therefore reviewing two mutually exclusive alternatives to apply to a selection of its products:

Alternative 1

To outsource production of guitar bodies and necks to a supplier in Montenegro to save costs. SAM would then assemble, varnish and set-up the guitars prior to shipping to retail outlets. The assembly and setup processes are the ones where SAM's expertise can add most value to the final product, so it is hoped that perceived quality will not suffer as a result.

An initial investigation into potential sources of supply and costs of transportation has already been carried out by JKL Consultants at a cost of £75,000.

SAM's Finance Director has provided estimates of net sterling (£) and euro (€) cash flows for this proposal. These net cash flows, in real terms, are shown below.

Year	€m	£m
0	-20	0
1	2.80	2.85
2	4.20	4.20
3	4.00	4.55

Alternative 2

To continue to manufacture, but reduce its product range and improve quality. The net present value (NPV), internal rate of return (IRR) and modified internal rate of return (MIRR) for this alternative have already been calculated. The NPV is £2.03 million using a nominal discount rate of 9%, the IRR is 17.4%, and the MIRR is approximately 13.9%.

Other relevant information:

- For the purposes of evaluation, assume SAM has a three-year time horizon for investment appraisals.
- SAM evaluates all its investments using nominal Sterling cash flows and a nominal discount rate. All non-UK customers are invoiced in €. € nominal cash flows are converted to Sterling at the expected future exchange rate and discounted at the UK nominal rate.
- Inflation rates in Europe are expected to be constant at 4% per annum. UK inflation rates are expected to be 3% per annum. The current exchange rate is £/€1.300 (that is £1 = €1.300).

  Note: Ignore taxation.

Required:

Assume that you are the Financial Manager of SAM.

(a) Calculate the net present value (NPV), internal rate of return (IRR) and (approximate) modified internal rate of return (MIRR) of Alternative 1. (12 marks)

(b) Evaluate the two alternatives and recommend which alternative SAM should choose. Include in your answer

(i) a discussion about what other criteria could or should be considered before a final decision is taken, and

(ii) a brief explanation of the appropriateness and possible advantages of providing MIRRs for the evaluation of the two alternatives. (13 marks)

Note: **A report format is NOT required for this question.**

(Total: 25 marks)

QUESTION 2

Assume you are a financial analyst attending a shareholders' meeting at PDQ plc on behalf of your employers, a large pension fund. Your company is one of the few institutional investors in PDQ plc, which is a medium-sized company, listed on the London Stock Exchange.

The majority of the shareholders are small, private investors. At the shareholders' meeting you overhear a group of shareholders discussing the company's dividend policy. Some of the comments you hear are as follows.

'I think the company should increase its dividend payout to the maximum it can afford without having to borrow. That way our returns are less risky.'

'I don't agree. I think the company should reduce the dividend and retain even more of its earnings for future investment.'

'I would prefer no cash dividend at all and to receive annual bonus shares. The value of my shareholding would then immediately increase.'

'I read somewhere that dividend policy has no effect at all on the value of the company's shares.'

Required:

(a) Discuss the validity or otherwise of the shareholders' comments. (18 marks)

(b) The expectations and requirements of institutional investors in respect of a company's dividend policy may be different in a number of respects from those of private, individual shareholders.

Explain these differences and comment on the problems PDQ plc might face in trying to reconcile the requirements of the two groups of shareholders. (7 marks)

(Total: 25 marks)

TABLES AND FORMULAE

Present value of 1.00 unit of currency i.e. $(1 + r)^{-n}$ where r = interest rate, n = number of periods until payment or receipt.

Periods (n)	Interest rates (r) 1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	.990	.980	.971	.962	.952	.943	.935	.926	.917	.909
2	.980	.961	.943	.925	.907	.890	.873	.857	.842	.826
3	.971	.942	.915	.889	.864	.840	.816	.794	.772	.751
4	.961	.924	.888	.855	.823	.792	.763	.735	.708	.683
5	.951	.906	.863	.822	.784	.747	.713	.681	.650	.621
6	.942	.888	.837	.790	.746	.705	.666	.630	.596	.564
7	.933	.871	.813	.760	.711	.665	.623	.583	.547	.513
8	.923	.853	.789	.731	.677	.627	.582	.540	.502	.467
9	.914	.837	.766	.703	.645	.592	.544	.500	.460	.424
10	.905	.820	.744	.676	.614	.558	.508	.463	.422	.386
11	.896	.804	.722	.650	.585	.527	.475	.429	.388	.350
12	.887	.788	.701	.625	.557	.497	.444	.397	.356	.319
13	.879	.773	.681	.601	.530	.469	.415	.368	.326	.290
14	.870	.758	.661	.577	.505	.442	.388	.340	.299	.263
15	.861	.743	.642	.555	.481	.417	.362	.315	.275	.239
16	.853	.728	.623	.534	.458	.394	.339	.292	.252	.218
17	.844	.714	.605	.513	.436	.371	.317	.270	.231	.198
18	.836	.700	.587	.494	.416	.350	.296	.250	.212	.180
19	.828	.686	.570	.475	.396	.331	.277	.232	.194	.164
20	.820	.673	.554	.456	.377	.312	.258	.215	.178	.149

Periods (n)	Interest rates (r) 11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	.901	.893	.885	.877	.870	.862	.855	.847	.840	.833
2	.812	.797	.783	.769	.756	.743	.731	.718	.706	.694
3	.731	.712	.693	.675	.658	.641	.624	.609	.593	.579
4	.659	.636	.613	.592	.572	.552	.534	.516	.499	.482
5	.593	.567	.543	.519	.497	.476	.456	.437	.419	.402
6	.535	.507	.480	.456	.432	.410	.390	.370	.352	.335
7	.482	.452	.425	.400	.376	.354	.333	.314	.296	.279
8	.434	.404	.376	.351	.327	.305	.285	.266	.249	.233
9	.391	.361	.333	.308	.284	.263	.243	.225	.209	.194
10	.352	.322	.295	.270	.247	.227	.208	.191	.176	.162
11	.317	.287	.261	.237	.215	.195	.178	.162	.148	.135
12	.286	.257	.231	.208	.187	.168	.152	.137	.124	.112
13	.258	.229	.204	.182	.163	.145	.130	.116	.104	.093
14	.232	.205	.181	.160	.141	.125	.111	.099	.088	.078
15	.209	.183	.160	.140	.123	.108	.095	.084	.074	.065
16	.188	.163	.141	.123	.107	.093	.081	.071	.062	.054
17	.170	.146	.125	.108	.093	.080	.069	.060	.052	.045
18	.153	.130	.111	.095	.081	.069	.059	.051	.044	.038
19	.138	.116	.098	.083	.070	.060	.051	.043	.037	.031
20	.124	.104	.087	.073	.061	.051	.043	.037	.031	.026

Cumulative present value of 1.00 unit of currency per annum

Receivable or payable at the end of each year for n years $\frac{1-(1+r)^{-n}}{r}$.

Periods (n)	Interest rates (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
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606
16	14.718	13.578	12.561	11.652	10.838	10.106	9.447	8.851	8.313	7.824
17	15.562	14.292	13.166	12.166	11.274	10.477	9.763	9.122	8.544	8.022
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.372	8.756	8.201
19	17.226	15.679	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365
20	18.046	16.351	14.878	13.590	12.462	11.470	10.594	9.818	9.129	8.514

Periods (n)	Interest rates (r)									
	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
2	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528
3	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106
4	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589
5	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991
6	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326
7	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605
8	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837
9	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031
10	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192
11	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327
12	6.492	6.194	5.918	5.660	5.421	5.197	4.968	4.793	4.611	4.439
13	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533
14	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611
15	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675
16	7.379	6.974	6.604	6.265	5.954	5.668	5.405	5.162	4.938	4.730
17	7.549	7.120	6.729	6.373	6.047	5.749	5.475	5.222	4.990	4.775
18	7.702	7.250	6.840	6.467	6.128	5.818	5.534	5.273	5.033	4.812
19	7.839	7.366	6.938	6.550	6.198	5.877	5.584	5.316	5.070	4.843
20	7.963	7.469	7.025	6.623	6.259	5.929	5.628	5.353	5.101	4.870

VALUATION MODELS

(i) Irredeemable preference shares, paying a constant annual dividend, d, in perpetuity, where P_0 is the ex-div value:

$$P_0 = \frac{d}{k_{pref}}$$

(ii) Ordinary (Equity) shares, paying a constant annual dividend, d, in perpetuity, where P_0 is the ex-div value:

$$P_0 = \frac{d}{k_e}$$

(iii) Ordinary (Equity) shares, paying an annual dividend, d, growing in perpetuity at a constant rate, g, where P_0 is the ex-div value:

$$P_0 = \frac{d_1}{k_e - g} \quad \text{or} \quad P_0 = \frac{d_0[1+g]}{k_e - g}$$

(iv) Irredeemable bonds, paying annual after tax interest, i(1 – t), in perpetuity, where P_0 is the ex-interest value:

$$P_0 = \frac{i[1-t]}{k_{d_{net}}}$$

or, without tax:

$$P_0 = \frac{i}{k_d}$$

(v) Total value of the geared firm, Vg (based on MM):

$$V_g = V_u + TB$$

(vi) Future value S, of a sum X, invested for n periods, compounded at r% interest:

$$S = X[1+r]^n$$

(vii) Present value of 1.00 unit of currency payable or receivable in n years, discounted at r% per annum:

$$PV = \frac{1}{[1+r]^n}$$

(viii) Present value of an annuity of 1.00 unit of currency per annum, receivable or payable for n years, commencing in one year, discounted at r% per annum:

$$PV = \frac{1}{r}\left[1 - \frac{1}{[1+r]^n}\right]$$

(ix) Present value of 1.00 unit of currency per annum, payable or receivable in perpetuity, commencing in one year, discounted at r% per annum:

$$PV = \frac{1}{r}$$

(x) Present value of 1.00 unit of currency per annum, receivable or payable, commencing in one year, growing in perpetuity at a constant rate of g% per annum, discounted at r% per annum:

$$PV = \frac{1}{r - g}$$

COST OF CAPITAL

(i) Cost of irredeemable preference shares, paying an annual dividend d in perpetuity, and having a current ex-div price P_0:

$$k_{pref} = \frac{d}{P_0}$$

(ii) Cost of irredeemable bonds, paying annual net interest i(1 – t), and having a current ex-interest price P_0:

$$k_{dnet} = \frac{i[1-t]}{P_0}$$

(iii) Cost of ordinary (Equity) share capital, paying an annual dividend d in perpetuity, and having a current ex-div price P0:

$$k_e = \frac{d}{P_0}$$

(iv) Cost of ordinary (Equity) shares, having a current ex-div price, P_0, having just paid a dividend, d_0, with the dividend growing in perpetuity by a constant g% per annum:

$$k_e = \frac{d_1}{P_0} + g \quad \text{or} \quad k_e = \frac{d_0[1+g]}{P_0} + g$$

(v) Cost of ordinary (Equity) shares, using the CAPM:

$$k_e = R_f + [R_m - R_f]\beta$$

(vi) Cost of ordinary (Equity) share capital in a geared entity:

$$k_{eg} = k_{eu} + [k_{eu} - k_d]\frac{V_D[1-t]}{V_E}$$

(vii) Weighted average cost of capital, k_0 or WACC:

$$WACC = k_e\left[\frac{V_E}{V_E + V_D}\right] + k_d(1-t)\left[\frac{V_D}{V_E + V_D}\right]$$

(viii) Adjusted cost of capital (MM formula):

$$k_{adj} = k_{eu}[1 - tL] \quad \text{or} \quad r^* = r[1 - T^*L]$$

(ix) Ungear ß:

$$\beta_u = \beta_g\left[\frac{V_E}{V_E + V_D(1-t)}\right] + \beta_d\left[\frac{V_D(1-t)}{V_E + V_D(1-t)}\right]$$

(x) Regear ß:

$$\beta_g = \beta_u + [\beta_u - \beta_d]\frac{V_D(1-t)}{V_E}$$

(xi) Adjusted discount rate to use in international capital budgeting (International Fisher Effect):

$$\frac{1+\text{annual discount rate B\$}}{1+\text{annual discount rate A\$}} = \frac{\text{Future Spot Rate A\$/B\$ in 12 months' time}}{\text{Spot rate A\$/B\$}}$$

where A$/B$ is the number of B$ to each A$

OTHER FORMULAE

(i) Expectations theory:

$$\text{Future spot rate A\$/B\$} = \text{Spot rate A\$/B\$} \times \frac{1 + \text{nominal country B interest rate}}{1 + \text{nominal country A interest rate}}$$

where A\$/B\$ is the number of B\$ to each A\$, and

A\$ is the currency of country A and B\$ is the currency of country B

(ii) Purchasing Power Parity (Law of one price):

$$\text{Future spot rate A\$/B\$} = \text{Spot rate A\$/B\$} \times \frac{1 + \text{country B inflation rate}}{1 + \text{country A inflation rate}}$$

(iii) Link between nominal (money) and real interest rates:

$$[1 + \text{nominal (money) rate}] = [1 + \text{real interest rate}]\,[1 + \text{inflation rate}]$$

(iv) Equivalent annual cost:

$$\text{Equivalent annual cost} = \frac{\text{PV of costs over n years}}{\text{n year annuity factor}}$$

(v) Theoretical ex-rights price:

$$\text{TERP} = \frac{1}{N+1}[(N \times \text{cum rights price}) + \text{issue price}]$$

(vi) Value of a right:

$$\frac{\text{Theoretical ex rights price} - \text{Issue price}}{N}$$

where N = number of rights required to buy one share.