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ACCA – Paper P4
Advanced Financial Management
December 2014 to June 2015
Interim Assessment

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Marking Report

Notice to Markers

1 When commenting about the script performance, please ensure on individual questions and on overall assessment your comments cover areas of examination technique including:

• Time management	• Handwriting	• Presentation and layout	• Use of English
• Points clearly and concisely made	• Relevance of answers to question	• Coverage and depth of answer	• Accuracy of calculations
• Calculations cross-referenced to workings	• All parts of the requirement attempted	• Length of answers equates to marks available	• Read the question carefully

2 For each question, please provide suitable constructive comments

Question Number	General Comments	Exam Technique Comments

ACCA INTERIM ASSESSMENT

Advanced Financial Management

December 2014 to June 2015

Paper P4

Time allowed
Reading time: **15 minutes**
Writing time: **3 hours**

Answer the question in section A and TWO questions in Section B

Do not open this paper until instructed by the supervisor

This question paper must not be removed from the examination hall

Kaplan Publishing/Kaplan Financial

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SECTION A

ANSWER THIS QUESTION

1 Labrador plc is a UK based manufacturer of caravans. The company's senior management have believed, for several years, that there is little opportunity to increase sales in the UK market and wish to set up a manufacturing subsidiary in the USA or in Switzerland. Because of high transportation costs, exporting from the UK is not financially viable.

Option 1: The USA option

The US investment would involve the purchase, via a take-over bid, of an existing caravan manufacturer based in Boston. The cost is not precisely known, but Labrador's managers are confident that a bid within the range $8m – $10m will be successful. Additional investment of $2 million in new machines and $4 million in working capital would immediately be required, resulting in forecast pre-tax net cash flows (after tax savings from depreciation) in year one of $2 million (at current prices) rising to $3 million (at current prices) in year two and subsequent years.

Option 2: The Swiss option

The Swiss subsidiary would involve the construction of a new factory on a 'green field' site. The projected costs are shown below.

Swiss Subsidiary	*(SFr 000)*	
	Now	*Year 1*
Land	2,300	–
Building	1,600	6,200
Machinery	–	6,400
Working capital	–	11,500

Production and sales in year two are estimated to be 2,000 caravans at an average price of SFr20,000 (at current prices). Production in each of years 3 – 6 is forecast at 2,500 units. Total local variable costs in Switzerland in year two are expected to be SFr11,000 per unit (at current prices). In addition, a fixed royalty fee of £750,000 per year would be payable to the UK parent company. The royalty fee is only payable in the years of production.

Tax allowable depreciation in Switzerland on machines is at 25% per year on a reducing balance basis. No tax allowable depreciation exists on other non current assets. The tax allowable depreciation can only be claimed in a year where taxable profits arise. It may be assumed the disposal value of the machinery at the end of year six is equal to its written down value i.e. there is no balancing allowance or charge at the end of year six.

General information

All prices and costs in Switzerland and the USA (including the amount of working capital required) are expected to increase annually by the current rate of inflation. The after tax realisable value of the investments in six years' time is expected to be approximately SFr16.2 million and US$14.5 million at price levels then ruling, excluding working capital.

Inflation rates for each of the next six years are expected to be:

USA	6%
UK	3%
Switzerland	5%

Exchange rates

	SFr/£1	US$/£1
Spot	2.3140 – 2.3210	1.5160 – 1.5210

Labrador can borrow funds for the investment at 10% per year in the UK. The company's cost of equity capital is estimated to be 15%. After either proposed investment Labrador's gearing will be approximately 50% debt, 50% equity by book value, and 30% debt, 70% equity by market value.

Corporate tax in Switzerland is at 40%, in the UK 33% and the USA 30%. Full bilateral tax treaties exist between the UK and both Switzerland and the USA.

Required:

(a) Evaluate which, if either, of the two subsidiaries should be established by Labrador. Include discussion of the limitations of your evaluation.

State clearly any assumptions that you make. (22 marks)

(b) Discuss the advantages and disadvantages of servicing overseas markets by:

(i) exporting

(ii) licensing

(iii) foreign direct investment. (8 marks)

(c) The managers are considering raising additional finance by the issue of a fixed rate secured debenture. They have taken advice and compiled a list of relevant considerations. There are four items on the list that they are not sure they understand fully. These are ‘credit rating’, ‘debt maturity’, ‘coupon rate’ and ‘redemption yield’. They have asked for your help in understanding the terms.

Required:

Explain the meaning and significance of the terms referred to above with specific reference to their influence on the required yield from the debenture. (12 marks)

(d) The managers have now decided to issue a debenture with a redemption yield of 7% and a maturity of ten years. They have decided to issue it at £95 per order to make it look attractive to potential investors. They are unsure on the required coupon rate for the debenture.

Required:

Calculate (to one decimal place) the coupon rate that would give the required redemption yield. (8 marks)

(Total: 50 marks)

SECTION B

ANSWER TWO QUESTIONS ONLY

2 (a) Discuss how a decrease in the value of each of the determinants of the option price in the Black-Scholes option-pricing model for European options is likely to change the price of a call option. (8 marks)

(b) Weller Inc is considering the introduction of an executive share option scheme.

The scheme would be offered to all middle managers of the company. It would replace the existing scheme of performance bonuses linked to the post-tax earnings per share of the company. Such bonuses in the last year averaged $1,500. If the option scheme is introduced, new options are expected to be offered to the managers each year.

It is proposed for the first year that all middle managers are offered options to purchase 2,000 shares at a price of 200 cents per share, after the options have been held for one year. Assume that the tax authorities allow the exercise of such options after they have been held for one year. If the options are not exercised at that time they will lapse.

The company's shares have a current market price of 280 cents. The short-term risk-free interest rate is 4% annum, and the company's share price has experienced a standard deviation of 25% during the last year.

Required:

(i) Discuss the relative merits for the company of the existing bonus scheme and the proposed share option scheme. (4 marks)

(ii) Evaluate whether or not the proposed share option scheme is likely to be attractive to middle managers of Weller Inc. (9 marks)

(iii) When told of the scheme one manager stated that he would rather receive put options than call options, as they would be more valuable to him.

(1) Discuss whether or not Weller Inc should agree to offer him put options. (2 marks)

(2) Calculate whether or not he is correct in his statement that put options would be more valuable to him. (2 marks)

(Total: 25 marks)

3 (a) The finance team of Fleet plc is undertaking a financial review of a potential new project. The new project is in the same industry as Fleet plc and the capital structure of the enlarged company will remain unchanged. The following details are available:

The capital structure of Fleet plc as at 1st January 20X8 is as follows:

	£m
Issued ordinary shares (25p shares)	250
Bank term loan	300
8% irredeemable debenture	600

The ordinary shares have a current market price of £2 each. Dividends per share in the five preceding years were as follows:

20X3	6.9 pence
20X4	7.2 pence
20X5	8.8 pence
20X6	9.6 pence
20X7	10.5 pence

The dividend for 20X7 has just been paid.

The bank is currently charging 10% on the term loan.

The debenture stock has a market price of £75.

The company pays corporation tax at a rate of 30%.

Required:

Calculate a suitable discount rate for the new project. (10 marks)

(b) Fleet plc has a subsidiary company Foxes plc. It currently invests in two projects, one of which is in the leisure industry and the other in publishing. These represent 65% and 35% respectively of Foxes plc's total market value.

The firm is considering investing additional funds into one of these projects, so the Financial Manager has presented the following analysis as a starting point to an investment appraisal:

	Leisure industry	*Publishing industry*	*Foxes plc*
Average beta equity	1.10	????	1.20
Average gearing of firms in the industry (D:E)	30:70	40:60	20:80

Unfortunately, the Financial Manager's spreadsheet has been corrupted so that the Publishing Industry beta equity is illegible. He is now uncontactable on holiday, so the firm's Chief Executive has asked for your help in reconstructing the spreadsheet.

N.B. Corporate taxation is at the rate of 30%. Assume that debt is risk free, so the beta of debt is zero.

Required:

From the information presented, reconstruct the Financial Manager's spreadsheet by calculating the average beta equity of the Publishing Industry. (10 marks)

(c) The directors of Foxes plc have decided to go ahead with a further investment in the leisure industry. They have presented you with the following further information:

- The financial gearing of the company is not expected to change as a result of any expansion.
- The IRR of Foxes plc's after tax cash flows on redeemable debt is 6.0%. The risk free rate is 5% and the estimated market return is 10%.

Required:

Calculate a suitable discount rate in order to appraise the additional investment in the leisure industry. (5 marks)

(Total: 25 marks)

4 (a) The board of directors of Rutherford Inc is arguing about the company's dividend policy.

Director A is in favour of financing all investment by retained earnings and other internally generated funds. He argues that a high level of retentions will save issue costs, and that declaring dividends always results in a fall in share price when the shares are traded ex div.

Director B believes that the dividend policy depends upon the type of shareholders that the company has, and that dividends should be paid according to shareholders' needs. She presents data relating to the company's current shareholders.

Rutherford plc: analysis of shareholding

	Number of shareholders	*Shares held (million)*	*% of total shares held*
Pension funds	203	38.4	25.1
Insurance companies	41	7.8	5.1
Unit and investment trusts	53	18.6	12.1
Nominees	490	32.4	21.2
Individuals	44,620	55.9	36.5
	45,407	153.1	100.0

She argues that the company's shareholder 'clientele' must be identified, and dividends fixed according to their marginal tax brackets.

Director C agrees that shareholders are important, but points out that many institutional shareholders and private individuals rely on dividends to satisfy their current income requirements, and prefer a known dividend now to an uncertain capital gain in the future.

Director D considers the discussion to be a waste of time. He believes that one dividend policy is as good as any other, and that dividend policy has no effect on the share price.

Required:

Discuss critically the arguments of each of the four directors using both the information provided and any other evidence on the effect of dividend policy on share price that you consider to be relevant. (15 marks)

(b) The managing director has just returned from a business school seminar on market efficiency. He is puzzled as he was told in the seminar that if markets are efficient all investments have an expected NPV of zero, yet the finance director has told him that it is essential for the company to maximise its expected NPV. He also wonders how recent stock market volatility can be explained if the market is efficient.

Required:

Produce a brief report for the managing director discussing his concerns and the importance of market efficiency to capital investment decisions.

(10 marks)

(Total: 25 marks)

MATHEMATICAL TABLES

Formulae and tables

Modigliani and Miller Proposition 2 (with tax)

$$k_e = k^i_e + (1 - T)(k^i_e - k_d)\ \frac{V_d}{V_e}$$

The Capital Asset Pricing Model

$$E(r_i) = R_f + \beta_i(E(r_m) - R_f)$$

The asset beta formula

$$\beta_a = \left(\frac{V_e}{(V_e + V_d(1-T))}\beta_e\right) + \left(\frac{V_d(1-T)}{V_e + V_d(1-T))}\beta_d\right)$$

The Growth Model

$$P_o = \frac{D_o(1+g)}{(r_e - g)}$$

Gordon's growth approximation

$$g = br_e$$

The weighted average cost of capital

$$WACC = \left(\frac{V_e}{V_e + V_d}\right)k_e + \left(\frac{V_d}{V_e + V_d}\right)k_d(1-T)$$

The Fisher formula

$$(1+i) = (1+r)(1+h)$$

Purchasing power parity and interest rate parity

$$s_1 = s_o \times \frac{(1+h_c)}{(1+h_b)}\ \ f_0 = s_o \times \frac{(1+i_c)}{(1+i_b)}$$

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

$$c = P_aN(d_1) - P_eN(d_2)e^{-rt}$$

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
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239

Periods (n)	Discount rate (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	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.074	0.065

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

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
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	8.495
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

Periods (n)	Discount rate (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

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	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
0.7	.2580	.2611	.2642	.2673	.2703	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4430	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4980	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990

This table can be used to calculate $N(d_i)$, the cumulative normal distribution functions needed for the Black-Scholes model of option pricing. If $d_1 > 0$, add 0.5 to the relevant number above. If $d_1 < 0$, subtract the relevant number above from 0.5.