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ACCA – Paper P4
Advanced Financial Management
September 2015 to June 2016
Interim Assessment

Instructions

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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

September 2015 to June 2016

Paper P4

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

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

Mathematical tables start on page 9.

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 Rosy plc is a UK based, internationally diversified company, operating in the food manufacturing industry. It is currently considering a new capital project in Australia, known as Project XY.

New project details

Project XY would require immediate capital expenditure of A$ 15m, plus A$ 5m of working capital which would be recovered at the end of the project's four year life. It is estimated that an annual revenue of A$ 18m would be generated, with annual operating costs of A$ 5m. Straight-line depreciation over the life of the project is an allowable expense against company tax in Australia which is charged at a rate of 50%, payable at each year-end without delay. The project's capital assets can be assumed to have a zero scrap value.

Financing proposal

Rosy plans to finance Project XY with a £5m four-year loan (net of issue costs) from the Euro-sterling market, plus £5m of retained earnings. Issue costs on the Euro-sterling debt will be 2.5% and are tax deductible. The credit spread applicable to Rosy plc on the Euro-sterling loan is 40 basis points above the current UK risk free rate.

However, there has been some disagreement about the proposed method of finance. The Chairman has suggested a rights issue of shares, while the sales director would like the Board to consider the use of an Australian dollar loan.

Other information

The food manufacturing industry has an equity beta of 1.40 and an average debt: equity gearing ratio of 1:4. Debt capital can be assumed to be virtually risk-free. The current return on UK government stock is 5.6% and the equity risk premium is 12%.

Corporate tax in the UK is at 35% and can be assumed to be payable at each year-end without delay. Because of a double-taxation agreement, Rosy will not have to pay any UK tax on Project XY. The company is expected to have a substantial UK tax liability from other operations for the foreseeable future.

The current spot rate is A$ 2.0000 to £1 and the A$ is expected to depreciate against the £ at an annual rate of 10%.

Required:

(a) Estimate the adjusted present value (APV) of Project XY. Recommend whether the project should be undertaken. (14 marks)

(b) Explain the difference between APV and NPV as methods of investment appraisal. Comment upon the circumstances under which APV might be a better method of evaluating a capital investment than NPV. (6 marks)

(c) Discuss the advantages and disadvantages of the company's intended financing plans for Project XY. Briefly evaluate the suggested alternative ways of raising the required finance. (10 marks)

(d) Rosy plc holds short term investments in the shares of four listed companies:

Company	*Holding*
A plc	100,000 shares, 50 pence par value
B plc	155,000 shares, £1 par value
C plc	260,000 shares, 20 pence par value
D plc	430,000 shares, 10 pence par value

Company	*Equity beta*	*Market price (pence)*	*Latest dividend yield (%)*	*Expected total return on investment a year (%)*
A plc	1.55	280	6.8	23.70
B plc	0.65	340	3.6	13.40
C plc	1.26	150	6.4	20.12
D plc	1.14	95	7.2	20.38

As stated in the scenario presented above, the current return on UK government stock is 5.6% and the equity risk premium is 12%.

Required:

(i) Estimate the risk of Rosy plc's short term investment portfolio relative to the market. (6 marks)

(ii) Recommend, giving reasons, whether the composition of Rosy plc's short-term investment portfolio should be changed. Relevant calculations must be shown. (14 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 The following data relates to a large company operating in the electronics industry.

	20X3	*20X4*	*20X5*	*20X6*	*20X7*
After tax earnings ($ million)	130	195	255	295	472
Dividend per share (cents)	9.75	11.0	12.75	14.0	15.5
Number of ordinary shares (million)	508	600	650	695	930
Average share price (cents)	740	875	690	820	1,012
Net capital investment ($ million)	210	270	340	410	520
Annual increase in inflation (%)	4	4	3	3	3

A major institutional shareholder has criticised the level of dividend payment of the company suggesting that it should be substantially increased.

Required:

(a) Briefly discuss the factors that are likely to influence the company's dividend policy.
(7 marks)

(b) Discuss whether or not the institutional shareholder's criticism is likely to be valid.
(8 marks)

(c) Hiome Co has experienced a period of above average growth for its industry, but is now growing at a normal rate of about 10% per annum. The company's directors are reviewing the current dividend policy. One director has suggested that, as the company no longer needs as much internally generated funds to finance new investment, a higher proportion of earnings should be paid out as dividends in order to benefit the company's shareholders. Another director has read that two eminent economists, Miller and Modigliani, have stated that the pattern of dividend payouts is irrelevant, and therefore shareholders will experience no gain from a higher level of dividends.

Required:

Discuss whether or not an increase in dividends is likely to benefit the shareholders of Hiome Co. **(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.