ACCA FINAL ASSESSMENT

Advanced Financial Management

June 2012

Paper P4

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

Answer BOTH questions 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

KAPLAN PUBLISHING

SECTION A

ANSWER BOTH QUESTIONS

QUESTION 1

Larkin Motors plc ("LM") is a long-established listed company. Its main business is the retailing of new and used motor cars and the provision of after-sales service. It has sales outlets in most of the major towns and cities in the UK. It also owns a substantial amount of land and property that it has acquired over the years, much of which it rents or leases on medium-long term agreements. Approximately 80% of its non-current asset value is land and buildings.

The company has grown organically for the last few years but is now considering expanding by acquisition. The Chief Executive is not in favour of hostile bids as he believes the bidder always pays too much to acquire the target. Any acquisition that LM makes will therefore need to be an agreed bid.

Brass Vehicles Limited ("BV") owns a number of car showrooms in wealthy, semi-rural locations in the North of England. All of these showrooms operate the franchise of a well-known major motor company. BV is a long-established private company with the majority of shares owned by the founding family, many of whom still work for the company. The major shareholders are now considering selling the business if a suitable price can be agreed. The Managing Director of BV, who is a major shareholder, has approached LM to see if it would be interested in buying BV. He has implied that holders of up to 50% of BV's shares might be willing to accept LM shares as part of the deal.

The forecast earnings of LM for the next financial year are £35 million. According to the Managing Director of BV, his company's earnings are expected to be £4 million for the next financial year.

Financial statistics and other information on LM and BV are shown below:

	LM	*BV*
Shares in issue (millions)	25	1.5
Earnings per share (pence)	112.5	153
Dividend per share (pence)	50.6	100
Share price (pence)	1,237	n/a
Net asset value attributable to equity (£m)	350	45
Debt ratio (outstanding debt as percentage of total market value of company)	20	0
Forecast growth rate percentage (constant, annualised)	4	5
Cost of equity	9%	n/a

BV does not calculate a cost of equity, but the industry average for similar companies is 10%.

Required:

Assume you are a financial manager working with LM. Advise the LM Board on the following issues in connection with a possible bid for BV:

(a) methods of valuation that might be appropriate and a range of valuations for BV within which LM should be prepared to negotiate (12 marks)

(b) the financial factors relating to both companies that might affect the bid (6 marks)

(c) the most appropriate form of funding the bid and the likely financial effects on LM (6 marks)

(d) the advantages and disadvantages of growth by agreed acquisition as compared with organic growth. (6 marks)

Note: **A report format is NOT required for this question. (Total: 30 marks)**

QUESTION 2

NTC plc is a UK multinational with subsidiaries in Spain, Hong Kong and the USA. Transactions between companies within the group have historically been in all of the currencies of the countries where the companies are located and have not been centrally co-ordinated, with the currency of the transaction varying in each deal. Transactions due in approximately three months' time are shown below. All receipts and payments are in thousand units of the specified currencies.

Assume that it is now mid-June.

		Payments (read down)		
Receipts (read across)	*UK*	*Spain*	*Hong Kong*	*USA*
UK	–	€210	HK$720	US$110
Spain	£100	–	€80	–
Hong Kong	HK$400	–	–	–
USA	US$430	€120	HK$300	–

Exchange rates:	US$/£	Euro/£	HK$/£
Spot	1.4358–1.4366	1.6275–1.6292	11.1987–11.2050
3 months forward	1.4285–1.4300	1.6146–1.6166	11.1567–11.1602

Note:

The Hong Kong dollar is pegged against the US dollar.

Interest rates available to NTC and its subsidiaries (annual %):

	Borrowing	*Investing*
UK	6.9	6.0
Spain	5.3	4.5
Hong Kong	n.a.	6.1
USA	6.2	5.4

Currency options

Philadelphia stock exchange £/$ options, £31,250 contracts. Premium is in cents per £.

		Calls			*Puts*	
Exercise price	*July*	*August*	*September*	*July*	*August*	*September*
1.42	1.42	2.12	2.67	0.68	1.42	2.15
1.43	0.88	1.60	1.79	1.14	1.92	3.12
1.44	0.51	1.19	1.42	1.77	2.51	4.35

Option premiums are payable upfront. Contracts may be assumed to expire at the end of the relevant month.

Required:

(a) (i) The parent company is proposing that inter-company payments should be settled in sterling via multilateral netting. Demonstrate how this policy would reduce the number of transactions. (Foreign exchange spot mid-rates may be used for this purpose.) (9 marks)

(ii) If payments were to continue to be made in various currencies, illustrate three methods by which the UK parent company might hedge its transaction exposures for the next three months. Discuss, showing relevant calculations, which method should be selected. Include in your discussion an evaluation of the circumstances in which currency options would be the preferred choice. (*Note:* NTC plc wishes to minimise the transaction costs of hedging.)(15 marks)

(b) NTC plc has been approached by a Russian company that wishes to purchase goods from NTC plc in exchange for wheat. The Russian currency is not freely convertible.

Discuss the potential advantages and disadvantages of such countertrade to NTC plc. (6 marks)

(Total: 30 marks)

SECTION B

ANSWER TWO QUESTIONS ONLY

QUESTION 3

C plc is based in France and its corporate treasury team is deciding what strategy to adopt towards interest rate risk management. The company's financial projections show an expected cash surplus in five months time of (€ = Euro) €4 million, which will last for a period of approximately six months. EURIBOR (which is the European equivalent of LIBOR) is currently 6.5% per year and C plc can borrow at 1.5% above EURIBOR, or invest at 1.5% below EURIBOR.

The corporate treasury team does not want interest receipts during the six-month period to decrease by more than €2,500 from the amounts that would be paid at current interest rates. It is now 1 October.

LIFFE prices (1 October)

Futures

LIFFE €1,000,000 three month euro interest rate (points of 100%)

December	93.35
March	93.20
June	92.85

Options

LIFFE €1,000,000 short euro options (points of 100%)

Exercise price	*Calls*			*Puts*		
	December	*March*	*June*	*December*	*March*	*June*
92.50	0.35	0.90	1.06	–	–	0.08
93.00	0.18	0.54	0.78	–	0.22	0.39
93.50	0.12	0.24	0.45	0.20	0.62	0.93
94.00	–	–	0.15	0.38	1.33	1.68

Required:

Illustrate the results of futures and options hedges if, by 1 March:

- **interest rates fall by 1% – futures prices move by 0.85%;**
- **interest rates rise by 2% – futures prices move by 1.9%.**

Explain how C plc should hedge its interest rate exposure. All relevant calculations must be shown. Taxation, transactions costs and margin requirements may be ignored. State clearly any assumptions that you make. (20 marks)

QUESTION 4

Emlyn Co is a company which owns and runs a large chain of bookshops located throughout the UK. Over the past three years the company has struggled to maintain its market share in the face of fierce competition from internet retailers and from large supermarket chains. Consequently, the company's share price has fallen from £4.33 three years ago, to £2.71 at the end of last week, and all three of the big credit rating agencies (Moody's, Fitch and Standard and Poor's) have downgraded Emlyn Co's rating on its corporate bonds.

Then, last weekend, an article by a respected financial analyst in The Sunday Times advised shareholders to sell their shares in Emlyn Co immediately. In 3 days of trading this week, the share price has fallen further, and now stands at £2.12.

The directors of Emlyn Co have just held an emergency board meeting. They have discussed the firm's current plight, and have decided that the firm needs to reduce risk, secure future growth, and to ultimately aim to improve shareholder wealth.

In an attempt to achieve all three of these objectives, the directors have decided to consider a new strategy of diversification, by attempting to acquire an underperforming business in a different business sector.

You are an advisor to the board of directors. You have been asked to prepare some briefing notes in advance of next week's follow-up board meeting.

Required:

(a) Briefly discuss whether diversification through acquisition is an effective means of reducing risk and securing future growth. (5 marks)

(b) Explain how a takeover may lead to an increase in wealth for the bidding company's shareholders. (5 marks)

(c) Explain why a takeover may fail to deliver an expected increase in wealth for the bidding company's shareholders. (5 marks)

(d) Briefly outline the role that financial analysts play in creating an efficient stock market. (5 marks)

(Total: 20 marks)

QUESTION 5

You are employed in the derivatives markets division of a leading international bank and you have responsibility for the following client portfolio:

Client A requires a call option on 4,000 ordinary shares in Lambley plc. The option is a European option and will be exercisable in 3 months time. An exercise price of £1.50 has been requested.

The following data is available:

Current share price of Lambley's shares	£1.80
Risk free interest rate	10% pa
Standard deviation (volatility) of Lambley's shares	50% pa

Client B owns 10,000 shares in Lambley plc and, because of the current market uncertainty, wishes to construct a risk less hedge for these shares.

Client C wishes to purchase a European put option on 2,000 Lambley plc shares, exercise price £1.50 for 3 month exercise.

Client D has been studying the prices of $/£ call options and requires you to outline the determinants of the option premiums on these instruments.

Required:

(a) Calculate the value/premium of the call option on 4000 shares in Lambley plc for client A. (7 marks)

(b) Demonstrate for client B how a delta hedge could be constructed to protect his position. (2 marks)

(c) Calculate the premium you would quote client C for a put option on 2000 shares in Lambley plc. (4 marks)

(d) Briefly outline the determinants of the premium for a call option on sterling options. (7 marks)

(Total: 20 marks)

MATHEMATICAL TABLES

FORMULAE AND TABLES

Modigliani and Miller Proposition 2 (with tax)

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

Two asset portfolio

$$s_p = \sqrt{w_a^2 s_a^2 + w_b^2 s_b^2 + 2 w_a w_b r_{ab} s_a s_b}$$

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

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

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

	.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.