Fundamentals Level – Skills Module

Financial Management

Friday 7 December 2012

Time allowed
Reading and planning: 15 minutes
Writing: 3 hours

ALL FOUR questions are compulsory and MUST be attempted.

Formulae Sheet, Present Value and Annuity Tables are on pages 6, 7 and 8.

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.

The Association of Chartered Certified Accountants

Paper F9

ACCA

ALL FOUR questions are compulsory and MUST be attempted

1 BQK Co, a house-building company, plans to build 100 houses on a development site over the next four years. The purchase cost of the development site is $4,000,000, payable at the start of the first year of construction. Two types of house will be built, with annual sales of each house expected to be as follows:

Year	1	2	3	4
Number of small houses sold:	15	20	15	5
Number of large houses sold:	7	8	15	15

Houses are built in the year of sale. Each customer finances the purchase of a home by taking out a long-term personal loan from their bank. Financial information relating to each type of house is as follows:

	Small house	Large house
Selling price:	$200,000	$350,000
Variable cost of construction:	$100,000	$200,000

Selling prices and variable cost of construction are in current price terms, before allowing for selling price inflation of 3% per year and variable cost of construction inflation of 4·5% per year.

Fixed infrastructure costs of $1,500,000 per year in current price terms would be incurred. These would not relate to any specific house, but would be for the provision of new roads, gardens, drainage and utilities. Infrastructure cost inflation is expected to be 2% per year.

BQK Co pays profit tax one year in arrears at an annual rate of 30%. The company can claim capital allowances on the purchase cost of the development site on a straight-line basis over the four years of construction.

BQK Co has a real after-tax cost of capital of 9% per year and a nominal after-tax cost of capital of 12% per year. New investments are required by the company to have a before-tax return on capital employed (accounting rate of return) on an average investment basis of 20% per year.

Required:

(a) Calculate the net present value of the proposed investment and comment on its financial acceptability. Work to the nearest $1,000. (13 marks)

(b) Calculate the before-tax return on capital employed (accounting rate of return) of the proposed investment on an average investment basis and discuss briefly its financial acceptability. (5 marks)

(c) Discuss the effect of a substantial rise in interest rates on the financing cost of BQK Co and its customers, and on the capital investment appraisal decision-making process of BQK Co. (7 marks)

(25 marks)

2 KXP Co is an e-business which trades solely over the internet. In the last year the company had sales of $15 million. All sales were on 30 days' credit to commercial customers.

Extracts from the company's most recent statement of financial position relating to working capital are as follows:

	$000
Trade receivables	2,466
Trade payables	2,220
Overdraft	3,000

In order to encourage customers to pay on time, KXP Co proposes introducing an early settlement discount of 1% for payment within 30 days, while increasing its normal credit period to 45 days. It is expected that, on average, 50% of customers will take the discount and pay within 30 days, 30% of customers will pay after 45 days, and 20% of customers will not change their current paying behaviour.

KXP Co currently orders 15,000 units per month of Product Z, demand for which is constant. There is only one supplier of Product Z and the cost of Product Z purchases over the last year was $540,000. The supplier has offered a 2% discount for orders of Product Z of 30,000 units or more. Each order costs KXP Co $150 to place and the holding cost is 24 cents per unit per year.

KXP Co has an overdraft facility charging interest of 6% per year.

Required:

(a) Calculate the net benefit or cost of the proposed changes in trade receivables policy and comment on your findings. (6 marks)

(b) Calculate whether the bulk purchase discount offered by the supplier is financially acceptable and comment on the assumptions made by your calculation. (6 marks)

(c) Identify and discuss the factors to be considered in determining the optimum level of cash to be held by a company. (5 marks)

(d) Discuss the factors to be considered in formulating a trade receivables management policy. (8 marks)

(25 marks)

3 The statement of financial position of BKB Co provides the following information:

	$m	$m
Equity finance		
Ordinary shares ($1 nominal value)	25	
Reserves	15	40
Non-current liabilities		
7% Convertible bonds ($100 nominal value)	20	
5% Preference shares ($1 nominal value)	10	30
Current liabilities		
Trade payables	10	
Overdraft	15	25
Total liabilities		95

BKB Co has an equity beta of 1·2 and the ex-dividend market value of the company's equity is $125 million. The ex-interest market value of the convertible bonds is $21 million and the ex-dividend market value of the preference shares is $6·25 million.

The convertible bonds of BKB Co have a conversion ratio of 19 ordinary shares per bond. The conversion date and redemption date are both on the same date in five years' time. The current ordinary share price of BKB Co is expected to increase by 4% per year for the foreseeable future.

The overdraft has a variable interest rate which is currently 6% per year and BKB Co expects this to increase in the near future. The overdraft has not changed in size over the last financial year, although one year ago the overdraft interest rate was 4% per year. The company's bank will not allow the overdraft to increase from its current level.

The equity risk premium is 5% per year and the risk-free rate of return is 4% per year. BKB Co pays profit tax at an annual rate of 30% per year.

Required:

(a) Calculate the market value after-tax weighted average cost of capital of BKB Co, explaining clearly any assumptions you make. (12 marks)

(b) Discuss why market value weighted average cost of capital is preferred to book value weighted average cost of capital when making investment decisions. (4 marks)

(c) Comment on the interest rate risk faced by BKB Co and discuss briefly how this risk can be managed. (5 marks)

(d) Discuss the attractions to a company of convertible debt compared to a bank loan of a similar maturity as a source of finance. (4 marks)

(25 marks)

4 GWW Co is a listed company which is seen as a potential target for acquisition by financial analysts. The value of the company has therefore been a matter of public debate in recent weeks and the following financial information is available:

Year	2009	2010	2011	2012
Profit after tax ($m)	8·5	8·9	9·7	10·1
Total dividends ($m)	5·0	5·2	5·6	6·0

Statement of financial position information for 2012

	$m	$m
Non-current assets		91·0
Current assets		
Inventory	3·8	
Trade receivables	4·5	8·3
Total assets		99·3
Equity finance		
Ordinary shares	20·0	
Reserves	47·2	67·2
Non-current liabilities		
8% bonds		25·0
Current liabilities		7·1
Total liabilities		99·3

The shares of GWW Co have a nominal (par) value of 50c per share and a market value of $4·00 per share. The cost of equity of the company is 9% per year. The business sector of GWW Co has an average price/earnings ratio of 17 times. The 8% bonds are redeemable at nominal (par) value of $100 per bond in seven years' time and the before-tax cost of debt of GWW Co is 6% per year.

The expected net realisable values of the non-current assets and the inventory are $86·0m and $4·2m, respectively. In the event of liquidation, only 80% of the trade receivables are expected to be collectible.

Required:

(a) Calculate the value of GWW Co using the following methods:

(i) market capitalisation (equity market value);
(ii) net asset value (liquidation basis);
(iii) price/earnings ratio method using the business sector average price/earnings ratio;
(iv) dividend growth model using:

(1) the average historic dividend growth rate;
(2) Gordon's growth model (the br_e model).

The total marks will be split equally between each part. (10 marks)

(b) Discuss the relative merits of the valuation methods in part (a) above in determining a purchase price for GWW Co. (8 marks)

(c) Calculate the following values for GWW Co:

(i) the before-tax market value of the bonds of GWW Co;
(ii) debt/equity ratio (book value basis);
(iii) debt/equity ratio (market value basis).

Discuss the usefulness of the debt/equity ratio in assessing the financial risk of GWW Co.

The total marks will be split equally between each part. (7 marks)

(25 marks)

Formulae Sheet

Economic order quantity

$$= \sqrt{\frac{2C_0D}{C_h}}$$

Miller–Orr Model

$$\text{Return point} = \text{Lower limit} + \left(\frac{1}{3} \times \text{spread}\right)$$

$$\text{Spread} = 3\left[\frac{\frac{3}{4} \times \text{transaction cost} \times \text{variance of cash flows}}{\text{interest rate}}\right]^{\frac{1}{3}}$$

The Capital Asset Pricing Model

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

The asset beta formula

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

The Growth Model

$$P_o = \frac{D_0\left(1+g\right)}{\left(r_e - g\right)}$$

Gordon's growth approximation

$$g = br_e$$

The weighted average cost of capital

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

The Fisher formula

$$\left(1+i\right) = \left(1+r\right)\left(1+h\right)$$

Purchasing power parity and interest rate parity

$$S_1 = S_0 \times \frac{\left(1+h_c\right)}{\left(1+h_b\right)} \qquad F_0 = S_0 \times \frac{\left(1+i_c\right)}{\left(1+i_b\right)}$$

Present Value Table

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

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

Discount rate (r)

Periods (n)	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	0·914	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	0·350	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

[P.T.O.

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

Discount rate (r)

Periods (n)	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	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	10·368	9·787	9·253	8·760	8·306	7·887	7·499	7·139	6·805	6·495	11
12	11·255	10·575	9·954	9·385	8·863	8·384	7·943	7·536	7·161	6·814	12
13	12·134	11·348	10·635	9·986	9·394	8·853	8·358	7·904	7·487	7·103	13
14	13·004	12·106	11·296	10·563	9·899	9·295	8·745	8·244	7·786	7·367	14
15	13·865	12·849	11·938	11·118	10·380	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

End of Question Paper