Fundamentals Level – Skills Module

Financial Management

Thursday 10 December 2009

Paper F9

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

ACCA

ALL FOUR questions are compulsory and MUST be attempted

1 ASOP Co is considering an investment in new technology that will reduce operating costs through increasing energy efficiency and decreasing pollution. The new technology will cost $1 million and have a four-year life, at the end of which it will have a scrap value of $100,000.

A licence fee of $104,000 is payable at the end of the first year. This licence fee will increase by 4% per year in each subsequent year.

The new technology is expected to reduce operating costs by $5·80 per unit in current price terms. This reduction in operating costs is before taking account of expected inflation of 5% per year.

Forecast production volumes over the life of the new technology are expected to be as follows:

Year	1	2	3	4
Production (units per year)	60,000	75,000	95,000	80,000

If ASOP Co bought the new technology, it would finance the purchase through a four-year loan paying interest at an annual before-tax rate of 8·6% per year.

Alternatively, ASOP Co could lease the new technology. The company would pay four annual lease rentals of $380,000 per year, payable in advance at the start of each year. The annual lease rentals include the cost of the licence fee.

If ASOP Co buys the new technology it can claim capital allowances on the investment on a 25% reducing balance basis. The company pays taxation one year in arrears at an annual rate of 30%. ASOP Co has an after-tax weighted average cost of capital of 11% per year.

Required:

(a) Based on financing cash flows only, calculate and determine whether ASOP Co should lease or buy the new technology. (11 marks)

(b) Using a nominal terms approach, calculate the net present value of buying the new technology and advise whether ASOP Co should undertake the proposed investment. (6 marks)

(c) Discuss and illustrate how ASOP Co can use equivalent annual cost or equivalent annual benefit to choose between new technologies with different expected lives. (3 marks)

(d) Discuss how an optimal investment schedule can be formulated when capital is rationed and investment projects are either:

(i) divisible; or
(ii) non-divisible. (5 marks)

(25 marks)

2 DD Co has a dividend payout ratio of 40% and has maintained this payout ratio for several years. The current dividend per share of the company is 50c per share and it expects that its next dividend per share, payable in one year's time, will be 52c per share.

The capital structure of the company is as follows:

	$m	$m
Equity		
Ordinary shares (par value $1 per share)	25	
Reserves	35	
		60
Debt		
Bond A (par value $100)	20	
Bond B (par value $100)	10	
		30
		90

Bond A will be redeemed at par in ten years' time and pays annual interest of 9%. The current ex interest market price of the bond is $95·08.

Bond B will be redeemed at par in four years' time and pays annual interest of 8%. The cost of debt of this bond is 7·82% per year. The current ex interest market price of the bond is $102·01.

Bond A and Bond B were issued at the same time.

DD Co has an equity beta of 1·2. The risk-free rate of return is 4% per year and the average return on the market of 11% per year. Ignore taxation.

Required:

(a) Calculate the cost of debt of Bond A. (3 marks)

(b) Discuss the reasons why different bonds of the same company might have different costs of debt. (6 marks)

(c) Calculate the following values for DD Co:

(i) cost of equity, using the capital asset pricing model; (2 marks)

(ii) ex dividend share price, using the dividend growth model; (3 marks)

(iii) capital gearing (debt divided by debt plus equity) using market values; and (2 marks)

(iv) market value weighted average cost of capital. (2 marks)

(d) Discuss whether a change in dividend policy will affect the share price of DD Co. (7 marks)

(25 marks)

3 NG Co has exported products to Europe for several years and has an established market presence there. It now plans to increase its market share through investing in a storage, packing and distribution network. The investment will cost €13 million and is to be financed by equal amounts of equity and debt. The return in euros before interest and taxation on the total amount invested is forecast to be 20% per year.

The debt finance will be provided by a €6·5 million bond issue on a large European stock market. The interest rate on the bond issue is 8% per year, with interest being payable in euros on a six-monthly basis.

The equity finance will be raised in dollars by a rights issue in the home country of NG Co. Issue costs for the rights issue will be $312,000. The rights issue price will be at a 17% discount to the current share price. The current share price of NG Co is $4·00 per share and the market capitalisation of the company is $100 million.

NG Co pays taxation in its home country at a rate of 30% per year. The currency of its home country is the dollar. The current price/earnings ratio of the company, which is not expected to change as a result of the proposed investment, is 10 times.

The spot exchange rate is 1·3000 €/$. All European customers pay on a credit basis in euros.

Required:

(a) Calculate the theoretical ex rights price per share after the rights issue. (4 marks)

(b) Evaluate the effect of the European investment on:

(i) the earnings per share of NG Co; and
(ii) the wealth of the shareholders of NG Co.

Assume that the current spot rate and earnings from existing operations are both constant. (9 marks)

(c) Explain the difference between transaction risk and translation risk, illustrating your answer using the information provided. (4 marks)

(**d**) The six-month forward rate is 1·2876 €/$ and the twelve-month forward rate is 1·2752 €/$. NG Co can earn 2·8% per year on short-term euro deposits and can borrow short-term in dollars at 5·3% per year.

Identify and briefly discuss exchange rate hedging methods that could be used by NG Co. Provide calculations that illustrate TWO of the hedging methods that you have identified. (8 marks)

(25 marks)

4 APX Co achieved a turnover of $16 million in the year that has just ended and expects turnover growth of 8·4% in the next year. Cost of sales in the year that has just ended was $10·88 million and other expenses were $1·44 million.

The financial statements of APX Co for the year that has just ended contain the following statement of financial position:

	$m	$m
Non-current assets		22·0
Current assets		
Inventory	2·4	
Trade receivables	2·2	
		4·6
Total assets		26·6
Equity finance:	$m	$m
Ordinary shares	5·0	
Reserves	7·5	
		12·5
Long-term bank loan		10·0
		22·5
Current liabilities		
Trade payables	1·9	
Overdraft	2·2	
		4·1
Total liabilities		26·6

The long-term bank loan has a fixed annual interest rate of 8% per year. APX Co pays taxation at an annual rate of 30% per year.

The following accounting ratios have been forecast for the next year:

Gross profit margin:	30%
Operating profit margin:	20%
Dividend payout ratio:	50%
Inventory turnover period:	110 days
Trade receivables period:	65 days
Trade payables period:	75 days

Overdraft interest in the next year is forecast to be $140,000. No change is expected in the level of non-current assets and depreciation should be ignored.

Required:

(a) Discuss the role of financial intermediaries in providing short-term finance for use by business organisations. (4 marks)

(b) Prepare the following forecast financial statements for APX Co using the information provided:

(i) an income statement for the next year; and
(ii) a statement of financial position at the end of the next year. (9 marks)

(c) Analyse and discuss the working capital financing policy of APX Co. (6 marks)

(d) Analyse and discuss the forecast financial performance of APX Co in terms of working capital management. (6 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

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

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

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

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

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

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	0·941	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	0·305	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

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	10·37	9·787	9·253	8·760	8·306	7·887	7·499	7·139	6·805	6·495	11
12	11·26	10·58	9·954	9·385	8·863	8·384	7·943	7·536	7·161	6·814	12
13	12·13	11·35	10·63	9·986	9·394	8·853	8·358	7·904	7·487	7·103	13
14	13·00	12·11	11·30	10·56	9·899	9·295	8·745	8·244	7·786	7·367	14
15	13·87	12·85	11·94	11·12	10·38	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