Fundamentals Level – Skills Module

Financial Management

Friday 15 June 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 8, 9 and 10.

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.

ACCA

The Association of Chartered Certified Accountants

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The question paper begins on page 3.

ALL FOUR questions are compulsory and MUST be attempted

1   Ridag Co is evaluating two investment projects, as follows.

Project 1

This is an investment in new machinery to produce a recently-developed product. The cost of the machinery, which is payable immediately, is $1·5 million, and the scrap value of the machinery at the end of four years is expected to be $100,000. Capital allowances (tax-allowable depreciation) can be claimed on this investment on a 25% reducing balance basis. Information on future returns from the investment has been forecast to be as follows:

Year	1	2	3	4
Sales volume (units/year)	50,000	95,000	140,000	75,000
Selling price ($/unit)	25·00	24·00	23·00	23·00
Variable cost ($/unit)	10·00	11·00	12·00	12·50
Fixed costs ($/year)	105,000	115,000	125,000	125,000

This information must be adjusted to allow for selling price inflation of 4% per year and variable cost inflation of 2·5% per year. Fixed costs, which are wholly attributable to the project, have already been adjusted for inflation. Ridag Co pays profit tax of 30% per year one year in arrears.

Project 2

Ridag Co plans to replace an existing machine and must choose between two machines. Machine 1 has an initial cost of $200,000 and will have a scrap value of $25,000 after four years. Machine 2 has an initial cost of $225,000 and will have a scrap value of $50,000 after three years. Annual maintenance costs of the two machines are as follows:

Year	1	2	3	4
Machine 1 ($/year)	25,000	29,000	32,000	35,000
Machine 2 ($/year)	15,000	20,000	25,000	

Where relevant, all information relating to Project 2 has already been adjusted to include expected future inflation. Taxation and capital allowances must be ignored in relation to Machine 1 and Machine 2.

Other information

Ridag Co has a nominal before-tax weighted average cost of capital of 12% and a nominal after-tax weighted average cost of capital of 7%.

Required:

(a) **Calculate the net present value of Project 1 and comment on whether this project is financially acceptable to Ridag Co.**   (12 marks)

(b) **Calculate the equivalent annual costs of Machine 1 and Machine 2, and discuss which machine should be purchased.**   (6 marks)

(c) **Critically discuss the use of sensitivity analysis and probability analysis as ways of including risk in the investment appraisal process, referring in your answer to the relative effectiveness of each method.**
                                                                                                          (7 marks)

                                                                                                          (25 marks)

2 The following financial information relates to Wobnig Co.

Income statement extracts

	2011 $000	2010 $000
Revenue	14,525	10,375
Cost of sales	10,458	6,640
Profit before interest and tax	4,067	3,735
Interest	355	292
Profit before tax	3,712	3,443
Taxation	1,485	1,278
Distributable profit	2,227	2,165

Statement of financial position extracts

	2011 $000	2011 $000	2010 $000	2010 $000
Non-current assets		15,284		14,602
Current assets				
Inventory	2,149		1,092	
Trade receivables	3,200		1,734	
		5,349		2,826
Total assets		20,633		17,428
Current liabilities				
Trade payables	2,865		1,637	
Overdraft	1,500		250	
		4,365		1,887
Equity				
Ordinary shares	8,000		8,000	
Reserves	4,268		3,541	
		12,268		11,541
Long-term liabilities				
7% Bonds		4,000		4,000
Total liabilities		20,633		17,428

Average ratios for the last two years for companies with similar business operations to Wobnig Co are as follows:

Current ratio	1·7 times
Quick ratio	1·1 times
Inventory days	55 days
Trade receivables days	60 days
Trade payables days	85 days
Sales revenue/net working capital	10 times

4

Required:

(a) Using suitable working capital ratios and analysis of the financial information provided, evaluate whether Wobnig Co can be described as overtrading (undercapitalised). (12 marks)

(b) Critically discuss the similarities and differences between working capital policies in the following areas:

(i) Working capital investment;
(ii) Working capital financing. (9 marks)

(c) Wobnig Co is considering using the Miller-Orr model to manage its cash flows. The minimum cash balance would be $200,000 and the spread is expected to be $75,000.

Required:

Calculate the Miller-Orr model upper limit and return point, and explain how these would be used to manage the cash balances of Wobnig Co. (4 marks)

(25 marks)

3 Zigto Co is a medium-sized company whose ordinary shares are all owned by the members of one family. It has recently begun exporting to a European country and expects to receive €500,000 in six months' time. The prospect of increased exports to the European country means that Zigto Co needs to expand its existing business operations in order to be able to meet future orders. All of the family members are in favour of the planned expansion, but none are in a position to provide additional finance. The company is therefore seeking to raise external finance of approximately $1 million. At the same time, the company plans to take action to hedge the exchange rate risk arising from its European exports.

Zigto Co could put cash on deposit in the European country at an annual interest rate of 3% per year, and borrow at 5% per year. The company could put cash on deposit in its home country at an annual interest rate of 4% per year, and borrow at 6% per year. Inflation in the European country is 3% per year, while inflation in the home country of Zigto Co is 4·5% per year.

The following exchange rates are currently available to Zigto Co:

Current spot exchange rate	2·000 euro per $
Six-month forward exchange rate	1·990 euro per $
One-year forward exchange rate	1·981 euro per $

Required:

(a) Discuss the reasons why small and medium-sized entities (SMEs) might experience less conflict between the objectives of shareholders and directors than large listed companies. (4 marks)

(b) Discuss the factors that Zigto Co should consider when choosing a source of debt finance and the factors that may be considered by providers of finance in deciding how much to lend to the company. (8 marks)

(c) Explain the nature of a *mudaraba* contract and discuss briefly how this form of Islamic finance could be used to finance the planned business expansion. (5 marks)

(d) Calculate whether a forward exchange contract or a money market hedge would be financially preferred by Zigto Co to hedge its future euro receipt. (5 marks)

(e) Calculate the one-year expected (future) spot rate predicted by purchasing power parity theory and explain briefly the relationship between the expected (future) spot rate and the current forward exchange rate. (3 marks)

(25 marks)

4 Corhig Co is a company that is listed on a major stock exchange. The company has struggled to maintain profitability in the last two years due to poor economic conditions in its home country and as a consequence it has decided not to pay a dividend in the current year. However, there are now clear signs of economic recovery and Corhig Co is optimistic that payment of dividends can be resumed in the future. Forecast financial information relating to the company is as follows:

Year	1	2	3
Earnings ($000)	3,000	3,600	4,300
Dividends ($000)	nil	500	1,000

The company is optimistic that earnings and dividends will increase after Year 3 at a constant annual rate of 3% per year.

Corhig Co currently has a before-tax cost of debt of 5% per year and an equity beta of 1·6. On a market value basis, the company is currently financed 75% by equity and 25% by debt.

During the course of the last two years the company acted to reduce its gearing and was able to redeem a large amount of debt. Since there are now clear signs of economic recovery, Corhig Co plans to raise further debt in order to modernise some of its non-current assets and to support the expected growth in earnings. This additional debt would mean that the capital structure of the company would change and it would be financed 60% by equity and 40% by debt on a market value basis. The before-tax cost of debt of Corhig Co would increase to 6% per year and the equity beta of Corhig Co would increase to 2.

The risk-free rate of return is 4% per year and the equity risk premium is 5% per year. In order to stimulate economic activity the government has reduced profit tax rate for all large companies to 20% per year.

The current average price/earnings ratio of listed companies similar to Corhig Co is 5 times.

Required:

(a) Estimate the value of Corhig Co using the price/earnings ratio method and discuss the usefulness of the variables that you have used. (4 marks)

(b) Calculate the current cost of equity of Corhig Co and, using this value, calculate the value of the company using the dividend valuation model. (6 marks)

(c) Calculate the current weighted average after-tax cost of capital of Corhig Co and the weighted average after-tax cost of capital following the new debt issue, and comment on the difference between the two values. (6 marks)

(d) Discuss how the shareholders of Corhig Co can assess the extent to which they face the following risks, explaining in each case the nature of the risk being assessed:

    (i) Business risk;
    (ii) Financial risk;
    (iii) Systematic risk. (9 marks)

(25 marks)

Formulae Sheet

Economic order quantity

$$= \sqrt{\frac{2C_0 D}{C_h}}$$

Miller–Orr Model

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

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

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

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

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. $\dfrac{1-(1+r)^{-n}}{r}$

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