Fundamentals Level – Skills Module

Financial Management

Friday 6 December 2013

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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   Darn Co has undertaken market research at a cost of $200,000 in order to forecast the future cash flows of an investment project with an expected life of four years, as follows:

Year	1	2	3	4
Sales revenue ($000)	1,250	2,570	6,890	4,530
Costs ($000)	500	1,000	2,500	1,750

These forecast cash flows are before taking account of general inflation of 4·7% per year. The capital cost of the investment project, payable at the start of the first year, will be $2,000,000. The investment project will have zero scrap value at the end of the fourth year. The level of working capital investment at the start of each year is expected to be 10% of the sales revenue in that year.

Capital allowances would be available on the capital cost of the investment project on a 25% reducing balance basis. Darn Co pays tax on profits at an annual rate of 30% per year, with tax being paid one year in arrears. Darn Co has a nominal (money terms) after-tax cost of capital of 12% per year.

Required:

(a) **Calculate the net present value of the investment project in nominal terms and comment on its financial acceptability.** (12 marks)

(b) **Calculate the net present value of the investment project in real terms and comment on its financial acceptability.** (7 marks)

(c) **Explain ways in which the directors of Darn Co can be encouraged to achieve the objective of maximisation of shareholder wealth.** (6 marks)

(25 marks)

2 Card Co has in issue 8 million shares with an ex dividend market value of $7·16 per share. A dividend of 62 cents per share for 2013 has just been paid. The pattern of recent dividends is as follows:

Year	2010	2011	2012	2013
Dividends per share (cents)	55·1	57·9	59·1	62·0

Card Co also has in issue 8·5% bonds redeemable in five years' time with a total nominal value of $5 million. The market value of each $100 bond is $103·42. Redemption will be at nominal value.

Card Co is planning to invest a significant amount of money into a joint venture in a new business area. It has identified a proxy company with a similar business risk to the joint venture. The proxy company has an equity beta of 1·038 and is financed 75% by equity and 25% by debt, on a market value basis.

The current risk-free rate of return is 4% and the average equity risk premium is 5%. Card Co pays profit tax at a rate of 30% per year and has an equity beta of 1·6.

Required:

(a) Calculate the cost of equity of Card Co using the dividend growth model. (3 marks)

(b) Discuss whether the dividend growth model or the capital asset pricing model should be used to calculate the cost of equity. (5 marks)

(c) Calculate the weighted average after-tax cost of capital of Card Co using a cost of equity of 12%. (5 marks)

(d) Calculate a project-specific cost of equity for Card Co for the planned joint venture. (4 marks)

(e) Discuss whether changing the capital structure of a company can lead to a reduction in its cost of capital and hence to an increase in the value of the company. (8 marks)

(25 marks)

3 Plot Co sells both Product P and Product Q, with sales of both products occurring evenly throughout the year.

Product P
The annual demand for Product P is 300,000 units and an order for new inventory is placed each month. Each order costs $267 to place. The cost of holding Product P in inventory is 10 cents per unit per year. Buffer inventory equal to 40% of one month's sales is maintained.

Product Q
The annual demand for Product Q is 456,000 units per year and Plot Co buys in this product at $1 per unit on 60 days credit. The supplier has offered an early settlement discount of 1% for settlement of invoices within 30 days.

Other information
Plot Co finances working capital with short-term finance costing 5% per year. Assume that there are 365 days in each year.

Required:

(a) Calculate the following values for Product P:

   (i) The total cost of the current ordering policy; (3 marks)

   (ii) The total cost of an ordering policy using the economic order quantity; (3 marks)

   (iii) The net cost or saving of introducing an ordering policy using the economic order quantity. (1 mark)

(b) Calculate the net value in dollars to Plot Co of accepting the early settlement discount for Product Q.
(5 marks)

(c) Discuss how invoice discounting and factoring can aid the management of trade receivables. (6 marks)

(d) Identify the objectives of working capital management and discuss the central role of working capital management in financial management. (7 marks)

(25 marks)

4 Spot Co is considering how to finance the acquisition of a machine costing $750,000 with an operating life of five years. There are two financing options.

Option 1
The machine could be leased for an annual lease payment of $155,000 per year, payable at the start of each year.

Option 2
The machine could be bought for $750,000 using a bank loan charging interest at an annual rate of 7% per year. At the end of five years, the machine would have a scrap value of 10% of the purchase price. If the machine is bought, maintenance costs of $20,000 per year would be incurred.

Taxation must be ignored.

Required:

(a) Evaluate whether Spot Co should use leasing or borrowing as a source of finance, explaining the evaluation method which you use. (10 marks)

(b) Discuss the attractions of leasing as a source of both short-term and long-term finance. (5 marks)

(c) In Islamic finance, explain briefly the concept of riba (interest) and how returns are made by Islamic financial instruments. (5 marks)

(d) Discuss briefly the reasons why interest rates may differ between loans of different maturity. (5 marks)

(25 marks)

Formulae Sheet

Economic order quantity

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

Miller–Orr Model

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

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

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

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