Fundamentals Level – Skills Module

Financial Management

Thursday 4 December 2008

Paper F9

ACCA

The Association of Chartered Certified Accountants

ALL FOUR questions are compulsory and MUST be attempted

1   Dartig Co is a stock-market listed company that manufactures consumer products and it is planning to expand its existing business. The investment cost of $5 million will be met by a 1 for 4 rights issue. The current share price of Dartig Co is $2·50 per share and the rights issue price will be at a 20% discount to this. The finance director of Dartig Co expects that the expansion of existing business will allow the average growth rate of earnings per share over the last four years to be maintained into the foreseeable future.

The earnings per share and dividends paid by Dartig over the last four years are as follows:

	2003	2004	2005	2006	2007
Earnings per share (cents)	27·7	29·0	29·0	30·2	32·4
Dividend per share (cents)	12·8	13·5	13·5	14·5	15·0

Dartig Co has a cost of equity of 10%. The price/earnings ratio of Dartig Co has been approximately constant in recent years. Ignore issue costs.

Required:

(a) Calculate the theoretical ex rights price per share prior to investing in the proposed business expansion.

(3 marks)

(b) Calculate the expected share price following the proposed business expansion using the price/earnings ratio method. (3 marks)

(c) Discuss whether the proposed business expansion is an acceptable use of the finance raised by the rights issue, and evaluate the expected effect on the wealth of the shareholders of Dartig Co. (5 marks)

(d) Using the information provided, calculate the ex div share price predicted by the dividend growth model and discuss briefly why this share price differs from the current market price of Dartig Co. (6 marks)

(e) At a recent board meeting of Dartig Co, a non-executive director suggested that the company's remuneration committee should consider scrapping the company's current share option scheme, since executive directors could be rewarded by the scheme even when they did not perform well. A second non-executive director disagreed, saying the problem was that even when directors acted in ways which decreased the agency problem, they might not be rewarded by the share option scheme if the stock market were in decline.

Required:

Explain the nature of the agency problem and discuss the use of share option schemes as a way of reducing the agency problem in a stock-market listed company such as Dartig Co. (8 marks)

(25 marks)

2 The following financial information related to Gorwa Co:

	2007	2006
	$000	$000
Sales (all on credit)	37,400	26,720
Cost of sales	34,408	23,781
Operating profit	2,992	2,939
Finance costs (interest payments)	355	274
Profit before taxation	2,637	2,665

	2007		2006	
	$000	$000	$000	$000
Non-current assets		13,632		12,750
Current assets				
Inventory	4,600		2,400	
Trade receivables	4,600		2,200	
	9,200		4,600	
Current liabilities				
Trade payables	4,750		2,000	
Overdraft	3,225		1,600	
	7,975		3,600	
Net current assets		1,225		1,000
		14,857		13,750
8% Bonds		2,425		2,425
		12,432		11,325
Capital and reserves				
Share capital		6,000		6,000
Reserves		6,432		5,325
		12,432		11,325

The average variable overdraft interest rate in each year was 5%. The 8% bonds are redeemable in ten years' time.

A factor has offered to take over the administration of trade receivables on a non-recourse basis for an annual fee of 3% of credit sales. The factor will maintain a trade receivables collection period of 30 days and Gorwa Co will save $100,000 per year in administration costs and $350,000 per year in bad debts. A condition of the factoring agreement is that the factor would advance 80% of the face value of receivables at an annual interest rate of 7%.

Required:

(a) Discuss, with supporting calculations, the possible effects on Gorwa Co of an increase in interest rates and advise the company of steps it can take to protect itself against interest rate risk. **(7 marks)**

(b) Use the above financial information to discuss, with supporting calculations, whether or not Gorwa Co is overtrading. **(10 marks)**

(c) Evaluate whether the proposal to factor trade receivables is financially acceptable. Assume an average cost of short-term finance in this part of the question only. **(8 marks)**

(25 marks)

3 Rupab Co is a manufacturing company that wishes to evaluate an investment in new production machinery. The machinery would enable the company to satisfy increasing demand for existing products and the investment is not expected to lead to any change in the existing level of business risk of Rupab Co.

The machinery will cost $2·5 million, payable at the start of the first year of operation, and is not expected to have any scrap value. Annual before-tax net cash flows of $680,000 per year would be generated by the investment in each of the five years of its expected operating life. These net cash inflows are before taking account of expected inflation of 3% per year. Initial investment of $240,000 in working capital would also be required, followed by incremental annual investment to maintain the purchasing power of working capital.

Rupab Co has in issue five million shares with a market value of $3·81 per share. The equity beta of the company is 1·2. The yield on short-term government debt is 4·5% per year and the equity risk premium is approximately 5% per year.

The debt finance of Rupab Co consists of bonds with a total book value of $2 million. These bonds pay annual interest before tax of 7%. The par value and market value of each bond is $100.

Rupab Co pays taxation one year in arrears at an annual rate of 25%. Capital allowances (tax-allowable depreciation) on machinery are on a straight-line basis over the life of the asset.

Required:

(a) **Calculate the after-tax weighted average cost of capital of Rupab Co.** (6 marks)

(b) **Prepare a forecast of the annual after-tax cash flows of the investment in nominal terms, and calculate and comment on its net present value.** (8 marks)

(c) **Explain how the capital asset pricing model can be used to calculate a project-specific discount rate and discuss the limitations of using the capital asset pricing model in investment appraisal.** (11 marks)

(25 marks)

4 Three years ago Boluje Co built a factory in its home country costing $3·2 million. To finance the construction of the factory, Boluje Co issued peso-denominated bonds in a foreign country whose currency is the peso. Interest rates at the time in the foreign country were historically low. The foreign bond issue raised 16 million pesos and the exchange rate at the time was 5·00 pesos/$.

Each foreign bond has a par value of 500 pesos and pays interest in pesos at the end of each year of 6·1%. The bonds will be redeemed in five years' time at par. The current cost of debt of peso-denominated bonds of similar risk is 7%.

In addition to domestic sales, Boluje Co exports goods to the foreign country and receives payment for export sales in pesos. Approximately 40% of production is exported to the foreign country.

The spot exchange rate is 6·00 pesos/$ and the 12-month forward exchange rate is 6·07 pesos/$. Boluje Co can borrow money on a short-term basis at 4% per year in its home currency and it can deposit money at 5% per year in the foreign country where the foreign bonds were issued. Taxation may be ignored in all calculation parts of this question.

Required:

(a) **Briefly explain the reasons why a company may choose to finance a new investment by an issue of debt finance.** (7 marks)

(b) **Calculate the current total market value (in pesos) of the foreign bonds used to finance the building of the new factory.** (4 marks)

(c) **Assume that Boluje Co has no surplus cash at the present time:**

    (i) **Explain and illustrate how a money market hedge could protect Boluje Co against exchange rate risk in relation to the dollar cost of the interest payment to be made in one year's time on its foreign bonds.**

        (4 marks)

    (ii) **Compare the relative costs of a money market hedge and a forward market hedge.** (2 marks)

(d) **Describe other methods, including derivatives, that Boluje Co could use to hedge against exchange rate risk.** (8 marks)

(25 marks)

Formulae Sheet

Economic order quantity

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

Miller–Orr Model

Return point = Lower limit + ($\frac{1}{3}$ × 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	0·941	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

[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	10·37	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