

Fundamentals Level – Skills Module

Financial Management

Friday 9 December 2011

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

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ALL FOUR questions are compulsory and MUST be attempted

1 Warden Co plans to buy a new machine. The cost of the machine, payable immediately, is \$800,000 and the machine has an expected life of five years. Additional investment in working capital of \$90,000 will be required at the start of the first year of operation. At the end of five years, the machine will be sold for scrap, with the scrap value expected to be 5% of the initial purchase cost of the machine. The machine will not be replaced.

Production and sales from the new machine are expected to be 100,000 units per year. Each unit can be sold for \$16 per unit and will incur variable costs of \$11 per unit. Incremental fixed costs arising from the operation of the machine will be \$160,000 per year.

Warden Co has an after-tax cost of capital of 11% which it uses as a discount rate in investment appraisal. The company pays profit tax one year in arrears at an annual rate of 30% per year. Capital allowances and inflation should be ignored.

Required:

- (a) Calculate the net present value of investing in the new machine and advise whether the investment is financially acceptable.** (7 marks)
- (b) Calculate the internal rate of return of investing in the new machine and advise whether the investment is financially acceptable.** (4 marks)
- (c) (i) Explain briefly the meaning of the term 'sensitivity analysis' in the context of investment appraisal;** (1 mark)
(ii) Calculate the sensitivity of the investment in the new machine to a change in selling price and to a change in discount rate, and comment on your findings. (6 marks)
- (d) Discuss the nature and causes of the problem of capital rationing in the context of investment appraisal, and explain how this problem can be overcome in reaching the optimal investment decision for a company.** (7 marks)

(25 marks)

2 Extracts from the recent financial statements of Bold Co are given below.

	\$000	
Turnover	21,300	
Cost of sales	16,400	
	4,900	
	\$000	\$000
Non-current assets		3,000
Current assets		
Inventory	4,500	
Trade receivables	3,500	
	8,000	
Total assets		11,000
Current liabilities		
Trade payables	3,000	
Overdraft	3,000	
	6,000	
Equity		
Ordinary shares	1,000	
Reserves	1,000	
	2,000	
Non-current liabilities		
Bonds		3,000
		11,000

A factor has offered to manage the trade receivables of Bold Co in a servicing and factor-financing agreement. The factor expects to reduce the average trade receivables period of Bold Co from its current level to 35 days; to reduce bad debts from 0.9% of turnover to 0.6% of turnover; and to save Bold Co \$40,000 per year in administration costs. The factor would also make an advance to Bold Co of 80% of the revised book value of trade receivables. The interest rate on the advance would be 2% higher than the 7% that Bold Co currently pays on its overdraft. The factor would charge a fee of 0.75% of turnover on a with-recourse basis, or a fee of 1.25% of turnover on a non-recourse basis. Assume that there are 365 working days in each year and that all sales and supplies are on credit.

Required:

- (a) **Explain the meaning of the term 'cash operating cycle' and discuss the relationship between the cash operating cycle and the level of investment in working capital. Your answer should include a discussion of relevant working capital policy and the nature of business operations.** (7 marks)
- (b) **Calculate the cash operating cycle of Bold Co. (Ignore the factor's offer in this part of the question).** (4 marks)
- (c) **Calculate the value of the factor's offer:**
 - (i) **on a with-recourse basis;**
 - (ii) **on a non-recourse basis.** (7 marks)
- (d) **Comment on the financial acceptability of the factor's offer and discuss the possible benefits to Bold Co of factoring its trade receivables.** (7 marks)

(25 marks)

3 Recent financial information relating to Close Co, a stock market listed company, is as follows.

	\$m
Profit after tax (earnings)	66.6
Dividends	40.0

Statement of financial position information:

	\$m	\$m
Non-current assets		595
Current assets		<u>125</u>
Total assets		<u>720</u>
Current liabilities		70
Equity		
Ordinary shares (\$1 nominal)	80	
Reserves	<u>410</u>	
		490
Non-current liabilities		
6% Bank loan	40	
8% Bonds (\$100 nominal)	<u>120</u>	
		160
		<u>720</u>

Financial analysts have forecast that the dividends of Close Co will grow in the future at a rate of 4% per year. This is slightly less than the forecast growth rate of the profit after tax (earnings) of the company, which is 5% per year. The finance director of Close Co thinks that, considering the risk associated with expected earnings growth, an earnings yield of 11% per year can be used for valuation purposes.

Close Co has a cost of equity of 10% per year and a before-tax cost of debt of 7% per year. The 8% bonds will be redeemed at nominal value in six years' time. Close Co pays tax at an annual rate of 30% per year and the ex-dividend share price of the company is \$8.50 per share.

Required:

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

- (i) net asset value method;**
- (ii) dividend growth model;**
- (iii) earnings yield method.**

(5 marks)

(b) Discuss the weaknesses of the dividend growth model as a way of valuing a company and its shares.

(5 marks)

(c) Calculate the weighted average after-tax cost of capital of Close Co using market values where appropriate.

(8 marks)

(d) Discuss the circumstances under which the weighted average cost of capital (WACC) can be used as a discount rate in investment appraisal. Briefly indicate alternative approaches that could be adopted when using the WACC is not appropriate.

(7 marks)

(25 marks)

- 4 Bar Co is a stock exchange listed company that is concerned by its current level of debt finance. It plans to make a rights issue and to use the funds raised to pay off some of its debt. The rights issue will be at a 20% discount to its current ex-dividend share price of \$7.50 per share and Bar Co plans to raise \$90 million. Bar Co believes that paying off some of its debt will not affect its price/earnings ratio, which is expected to remain constant.

Income statement information

	\$m
Turnover	472
Cost of sales	423
	<hr/>
Profit before interest and tax	49
Interest	10
	<hr/>
Profit before tax	39
Tax	12
	<hr/>
Profit after tax	27

Statement of financial position information

	\$m
Equity	
Ordinary shares (\$1 nominal)	60
Reserves	80
	<hr/>
	140
Long-term liabilities	
8% bonds (\$100 nominal)	125
	<hr/>
	265

The 8% bonds are currently trading at \$112.50 per \$100 bond and bondholders have agreed that they will allow Bar Co to buy back the bonds at this market value. Bar Co pays tax at a rate of 30% per year.

Required:

- (a) Calculate the theoretical ex rights price per share of Bar Co following the rights issue. (3 marks)
- (b) Calculate and discuss whether using the cash raised by the rights issue to buy back bonds is likely to be financially acceptable to the shareholders of Bar Co, commenting in your answer on the belief that the current price/earnings ratio will remain constant. (7 marks)
- (c) Calculate and discuss the effect of using the cash raised by the rights issue to buy back bonds on the financial risk of Bar Co, as measured by its interest coverage ratio and its book value debt to equity ratio. (4 marks)
- (d) Compare and contrast the financial objectives of a stock exchange listed company such as Bar Co and the financial objectives of a not-for-profit organisation such as a large charity. (11 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

$$P_0 = \frac{D_0(1+g)}{(r_e - g)}$$

Gordon's growth approximation

$$g = br_e$$

The weighted average cost of capital

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

The Fisher formula

$$(1+i) = (1+r)(1+h)$$

Purchasing power parity and interest rate parity

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

Present Value Table

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

Where r = discount rate

n = number of periods until payment

<i>Discount rate (r)</i>											
<i>Periods</i>											
(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

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

		<i>Discount rate (r)</i>										
<i>Periods</i>		1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	
(n)		11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	
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	
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