

Fundamentals Level – Skills Module

Financial Management

Thursday 9 June 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 7, 8 and 9.

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 BRT Co has developed a new confectionery line that can be sold for \$5.00 per box and that is expected to have continuing popularity for many years. The Finance Director has proposed that investment in the new product should be evaluated over a four-year time-horizon, even though sales would continue after the fourth year, on the grounds that cash flows after four years are too uncertain to be included in the evaluation. The variable and fixed costs (both in current price terms) will depend on sales volume, as follows.

Sales volume (boxes)	less than 1 million	1–1.9 million	2–2.9 million	3–3.9 million
Variable cost (\$ per box)	2.80	3.00	3.00	3.05
Total fixed costs (\$)	1 million	1.8 million	2.8 million	3.8 million

Forecast sales volumes are as follows.

Year	1	2	3	4
Demand (boxes)	0.7 million	1.6 million	2.1 million	3.0 million

The production equipment for the new confectionery line would cost \$2 million and an additional initial investment of \$750,000 would be needed for working capital. Capital allowances (tax-allowable depreciation) on a 25% reducing balance basis could be claimed on the cost of equipment. Profit tax of 30% per year will be payable one year in arrears. A balancing allowance would be claimed in the fourth year of operation.

The average general level of inflation is expected to be 3% per year and selling price, variable costs, fixed costs and working capital would all experience inflation of this level. BRT Co uses a nominal after-tax cost of capital of 12% to appraise new investment projects.

Required:

- (a) Assuming that production only lasts for four years, calculate the net present value of investing in the new product using a nominal terms approach and advise on its financial acceptability (work to the nearest \$1,000).** (13 marks)

- (b) Comment briefly on the proposal to use a four-year time horizon, and calculate and discuss a value that could be placed on after-tax cash flows arising after the fourth year of operation, using a perpetuity approach. Assume, for this part of the question only, that before-tax cash flows and profit tax are constant from year five onwards, and that capital allowances and working capital can be ignored.** (5 marks)

- (c) Discuss THREE ways of incorporating risk into the investment appraisal process.** (7 marks)

(25 marks)

- 2 The finance director of AQR Co has heard that the market value of the company will increase if the weighted average cost of capital of the company is decreased. The company, which is listed on a stock exchange, has 100 million shares in issue and the current ex div ordinary share price is \$2.50 per share. AQR Co also has in issue bonds with a book value of \$60 million and their current ex interest market price is \$104 per \$100 bond. The current after-tax cost of debt of AQR Co is 7% and the tax rate is 30%.

The recent dividends per share of the company are as follows.

Year	2006	2007	2008	2009	2010
Dividend per share (cents)	19.38	20.20	20.41	21.02	21.80

The finance director proposes to decrease the weighted average cost of capital of AQR Co, and hence increase its market value, by issuing \$40 million of bonds at their par value of \$100 per bond. These bonds would pay annual interest of 8% before tax and would be redeemed at a 5% premium to par after 10 years.

Required:

- (a) Calculate the market value after-tax weighted average cost of capital of AQR Co in the following circumstances:

- (i) before the new issue of bonds takes place;
- (ii) after the new issue of bonds takes place.

Comment on your findings. (12 marks)

- (b) Identify and discuss briefly the factors that influence the market value of traded bonds. (5 marks)

- (c) Discuss the director's view that issuing traded bonds will decrease the weighted average cost of capital of AQR Co and thereby increase the market value of the company. (8 marks)

(25 marks)

- 3 The following financial information relates to YNM Co, which has a cost of equity of 12%. Assume that it is now 31 March 2011 and that the ordinary share price of YNM Co is \$4.17 per share. YNM Co has been experiencing trading difficulties due to a continuing depressed level of economic activity:

Income statement information for recent years ending 31 March

	2009	2010	2011
	\$m	\$m	\$m
Profit before interest and tax	29.3	26.6	25.3
Finance charges (interest)	4.8	5.3	5.5
	<hr/>	<hr/>	<hr/>
Profit before tax	24.5	21.3	19.8
Taxation expense	7.3	6.4	5.9
	<hr/>	<hr/>	<hr/>
Profit for the period	17.2	14.9	13.9

Statement of financial position information as at 31 March 2011

	\$m	\$m
Ordinary shares, par value \$1	19.0	
Retained earnings	88.5	
	<hr/>	
Total equity		107.5
8% bonds, redeemable in two years' time		50.0
		<hr/>
Total equity and non-current liabilities		157.5

Note: the statement of financial position takes no account of any dividend to be paid. The ordinary share capital of YNM Co has not changed during the period under consideration and the 8% bonds were issued in 1998.

Dividend and share price information

	2008	2009	2010
Total cash dividend paid (\$m)		9.5	9.5
Share price at end of year (\$/share)	5.94	5.10	4.59

Average data on companies similar to YNM Co:

Interest coverage ratio	10 times
Long-term debt/equity (book value basis)	40%

Financial objective of YNM Co

YNM Co has a declared objective of maximising shareholder wealth.

Dividend decision

YNM Co is considering two alternative dividend choices for the year ending 31 March 2011:

- (1) To pay the same total cash dividend as in 2010
- (2) To pay no dividend at all for the year ending 31 March 2011

Financing decision

YNM Co is also considering raising \$50 million of new debt finance to support existing business operations.

Required:

- (a) Analyse and discuss the recent financial performance and the current financial position of YNM Co, commenting on:
- (i) achievement of the objective of maximising shareholder wealth;
 - (ii) the two dividend choices;
 - (iii) the proposal to raise \$50 million of new debt finance. (13 marks)
- (b) Discuss the following sources of finance that could be suitable for YNM Co, in its current position, to meet its need for \$50m to support existing business operations:
- (i) equity finance;
 - (ii) sale and leaseback. (6 marks)
- (c) Explain the nature of a scrip (share) dividend and discuss the advantages and disadvantages to a company of using scrip dividends to reward shareholders. (6 marks)
- (25 marks)**

- 4 (a) ZPS Co, whose home currency is the dollar, took out a fixed-interest peso bank loan several years ago when peso interest rates were relatively cheap compared to dollar interest rates. Economic difficulties have now increased peso interest rates while dollar interest rates have remained relatively stable. ZPS Co must pay interest of 5,000,000 pesos in six months' time. The following information is available.

	Per \$
Spot rate:	pesos 12·500 – pesos 12·582
Six-month forward rate:	pesos 12·805 – pesos 12·889

Interest rates that can be used by ZPS Co:

	Borrow	Deposit
Peso interest rates:	10·0% per year	7·5% per year
Dollar interest rates:	4·5% per year	3·5% per year

Required:

- (i) **Explain briefly the relationships between;**
- (1) **exchange rates and interest rates;**
 - (2) **exchange rates and inflation rates.** (5 marks)
- (ii) **Calculate whether a forward market hedge or a money market hedge should be used to hedge the interest payment of 5 million pesos in six months' time. Assume that ZPS Co would need to borrow any cash it uses in hedging exchange rate risk.** (6 marks)
- (b) ZPS Co places monthly orders with a supplier for 10,000 components that are used in its manufacturing processes. Annual demand is 120,000 components. The current terms are payment in full within 90 days, which ZPS Co meets, and the cost per component is \$7·50. The cost of ordering is \$200 per order, while the cost of holding components in inventory is \$1·00 per component per year.

The supplier has offered either a discount of 0·5% for payment in full within 30 days, or a discount of 3·6% on orders of 30,000 or more components. If the bulk purchase discount is taken, the cost of holding components in inventory would increase to \$2·20 per component per year due to the need for a larger storage facility.

Assume that there are 365 days in the year and that ZPS Co can borrow short-term at 4·5% per year.

Required:

- (i) **Discuss the factors that influence the formulation of working capital policy;** (7 marks)
- (ii) **Calculate if ZPS Co will benefit financially by accepting the offer of:**
- (1) **the early settlement discount;**
 - (2) **the bulk purchase discount.** (7 marks)

(25 marks)

Formulae Sheet

Economic order quantity

$$= \sqrt{\frac{2C_0D}{C_h}}$$

Miller–Orr Model

Return point = 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	0.941	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

		<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	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