AFRICA UNIVERSITY

COLLEGE OF BUSINESS, PEACE, LEADERSHIP AND GOVERNANCE

NMAC 204: BUSINESS FINANCE

END OF SECOND SEMESTER EXAMINATION

MAY 2024

LECTURER: MR CHIHOWA

DURATION: 3 HOURS

INSTRUCTIONS

You are required to answer questions as instructed

Answer **ALL** questions

Start **each** question on a new page in your answer booklet

Credit will be awarded for logical, systematic and neat presentations

QUESTION 1 (25 Marks)

a) Compare and contrast the characteristics of sole proprietorships and corporations as forms of business entities. **(10 Marks)**

b) A preference share has a fixed dividend of $5 per year and a required rate of return of 12%. The dividends are expected to be paid indefinitely. Calculate the present value of this preference share. **(5 Marks)**

c) A company is expected to pay dividends of $2 per share for the next 5 years. The required rate of return for investors is 10%. If the expected dividend growth rate is 4% per year, calculate the present value of this ordinary share. **(5 Marks)**

d) An ordinary share is expected to pay a dividend of $3 per share next year, and the dividends are expected to grow at a rate of 6% per year indefinitely. The required rate of return for investors is 8%. Calculate the present value of this ordinary share.**(5 Marks)**

QUESTION 2 (25 Marks)

Rainbow Co, a medium-sized company specialising in the manufacture and distribution of equipment for babies and small children, is evaluating a new capital expenditure project. In a joint venture with another separate company, it has invented a remote controlled pushchair, one of the first of its kind on the market.

It has been unable to obtain a patent for the invention, but is sure that it will monopolise the market for the first three years. After this, it expects to be faced with stiff competition.

The details are set out below.

1) The project has an immediate cost of $3 100 000
2) Sales are expected to be $1,600 000 per annum for years 1 to 3, falling to $600 000 per annum for the two years after that.

3) No further sales of the product are expected after the end of this five-year period.
4) Cost of sales is 45% of sales.
5) Distribution costs represent 5% of sales.
6) Administration costs are 5% of sales
7) The company's cost of capital is 10%

Required

a) Calculate the net present value of the project at the company's required rate of return. Assume that all cash flows arise annually in arrears unless otherwise stated. Conclude whether the project is financially viable. **(7Marks)**

b) Calculate the project's internal rate of return (IRR) to the nearest percent. **(7Marks)**

c) Calculate the project's simple payback period. Assume all cash flows arise at the end of the year apart from the immediate investment costs. **(5 Marks)**

d) Why is the net present value investment appraisal method preferred to other investment appraisal methods such as payback, return on capital employed and internal rate of return? **(6 Marks)**

QUESTION 3 (25 Marks)

Buxter Co wishes to calculate its weighted average cost of capital and the following information relates to the company at the current time:

Number of ordinary shares	20 000 000
Book value of 5% convertible debt	$29 000 000
Book value of 6% bank loan	$2 000 000

Market price of ordinary shares	$5·50 per share
Market value of convertible debt	$107·11 per $100 bond

Equity beta of Burse Co	1.2
Risk-free rate of return	4·7%
Equity risk premium	6·5%
Rate of taxation	30%

Buxter Co expects share prices to rise in the future at an average rate of 6% per year. The convertible debt can be redeemed at par in eight years' time, or converted in six years' time into 15 shares of Buxter Co per $100 bond.

Required

a) Calculate the market value weighted average cost of capital of Buxter Co. State clearly any assumptions that you make. **(12 marks)**

b) Outline the circumstances under which the weighted average cost of capital can be used in investment appraisal. **(6 marks)**

c) Discuss whether the dividend growth model or the capital asset pricing model offers the better estimate of the cost of equity of a company. **(7 marks)**

QUESTION 4 (25 Marks)

a) Discuss the different sources of long-term finance available to companies, such as equity financing, debt financing, and retained earnings. **(12 marks)**

b) Define short-term finance and explain its importance in managing a company's working capital. **(8 marks)**

c) Explain the factors that influence the choice of short-term financing sources for a company. **(5 marks)**

END OF EXAMINATION

PRESENT VALUE TABLES AND FORMULAE

Present value table

Present value of 1.00 unit of currency, that is $(1 + r)^{-n}$ where r = interest rate; n = number of periods until payment or receipt.

Periods (n)	Interest rates (r)									
	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
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180
19	0.828	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.194	0.164
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149

Periods (n)	Interest rates (r)									
	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
2	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.079	0.065
16	0.188	0.163	0.141	0.123	0.107	0.093	0.081	0.071	0.062	0.054
17	0.170	0.146	0.125	0.108	0.093	0.080	0.069	0.060	0.052	0.045
18	0.153	0.130	0.111	0.095	0.081	0.069	0.059	0.051	0.044	0.038
19	0.138	0.116	0.098	0.083	0.070	0.060	0.051	0.043	0.037	0.031
20	0.124	0.104	0.087	0.073	0.061	0.051	0.043	0.037	0.031	0.026

Cumulative present value of 1.00 unit of currency per annum

Receivable or Payable at the end of each year for n years $\dfrac{1-(1+r)^{-n}}{r}$

Periods	Interest rates (r)									
(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
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606
16	14.718	13.578	12.561	11.652	10.838	10.106	9.447	8.851	8.313	7.824
17	15.562	14.292	13.166	12.166	11.274	10.477	9.763	9.122	8.544	8.022
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.372	8.756	8.201
19	17.226	15.679	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365
20	18.046	16.351	14.878	13.590	12.462	11.470	10.594	9.818	9.129	8.514

Periods	Interest rates (r)									
(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
2	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528
3	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106
4	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589
5	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991
6	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326
7	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605
8	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837
9	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031
10	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192
11	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327
12	6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439
13	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533
14	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611
15	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675
16	7.379	6.974	6.604	6.265	5.954	5.668	5.405	5.162	4.938	4.730
17	7.549	7.120	6.729	6.373	6.047	5.749	5.475	5.222	4.990	4.775
18	7.702	7.250	6.840	6.467	6.128	5.818	5.534	5.273	5.033	4.812
19	7.839	7.366	6.938	6.550	6.198	5.877	5.584	5.316	5.070	4.843
20	7.963	7.469	7.025	6.623	6.259	5.929	5.628	5.353	5.101	4.870

FORMULAE

Valuation models

(i) Irredeemable preference shares, paying a constant annual dividend, d, in perpetuity, where P_0 is the ex-div value:

$$P_0 = \frac{d}{k_{pref}}$$

(ii) Ordinary (equity) shares, paying a constant annual dividend, d, in perpetuity, where P_0 is the

ex-div value:

$$P_0 = d/k_e$$

(iii) Ordinary (equity) shares, paying an annual dividend, d, growing in perpetuity at a constant rate, g, where P_0 is the ex-div value:

$$P_0 = \frac{d_1}{k_e - g} \quad \text{or} P_0 = \frac{d_0[1+g]}{k_e - g}$$

(iv) Irredeemable bonds, paying annual after-tax interest, $i[1 - t]$, in perpetuity, where P_0 is the ex-interest value:

$$P_0 = i[1-t]/k_{dnet}$$

or, without tax:

$$P_0 = \frac{i}{k_d}$$

(v) Future value of S, of a sum X, invested for n periods, compounded at r% interest:

$$= X[1 + r]^n$$

Cost of capital

(c) Cost of irredeemable preference shares, paying an annual dividend, d, in perpetuity, and having a current ex-div price P_0:

$$k_{pref} = d/P_0$$

(d) Cost of irredeemable bonds, paying annual net interest, $i[1 - t]$, and having a current ex-interest price P_0:

$$k_{d\ net} = \frac{i[1-t]}{P_0}$$

(iii) Cost of ordinary (equity) shares, paying an annual dividend, d, in perpetuity, and having a current ex-div price P_0:

$$k_e = d/P_0$$

(iv) Cost of ordinary (equity) shares, having a current ex-div price, P_0, having just paid a dividend, d_0, with the dividend growing in perpetuity by a constant g% per annum:

$$k_e = \frac{d_1}{P_0} + g \quad \text{or} \quad k_e = \frac{d_0[1+g]}{P_0} + g$$

(v) Cost of ordinary (equity) shares, using the CAPM:

$$k_e = R_f + [R_m - R_f]ß$$

(vi) Weighted average cost of capital, k_0 or WACC

$$WACC = k_e \frac{V_E}{V_E + V_D} + k_d[1-t]\frac{V_D}{V_E + V_D}$$

Other formulae

(iii) Link between nominal (money) and real interest rates:

[1 + nominal (money) rate] = [1 + real interest rate][1 + inflation rate]