



COLLEGE OF BUSINESS AND MANAGEMENT SCIENCES

NMAC 204: BUSINESS FINANCE

END OF SEMESTER EXAMINATION

NOVEMBER 2024

LECTURER: MR CHIHOWA

DURATION: 3 HOURS

INSTRUCTIONS

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) A new board member has been deployed to the finance committee of Dec Ltd and would like to understand the role of the finance manager as part of their induction. They are particularly interested in how the finance manager contributes to optimizing the company's financial performance, position and cash flow among others.

Required:

- i. As the finance manager, explain the key functions you perform to ensure the financial health of the company **(15 Marks)**
- b) Dec Ltd is also evaluating an investment opportunity and needs to consider the time value of money in its decision-making process.
 - i Explain the terms future value and present value **(4 Marks)**
 - ii Discuss the factors that influence the time value of money **(6 Marks)**

QUESTION 2 (25 Marks)

- a) You are advising a non-profit organization that expects to receive a donation of \$50,000 in 5 years. They want to know how much that donation is worth today if the discount rate is 4 %. **(5 Marks)**
- i. Calculate the present value of the future donation. Explain the discounting process used in your calculation. **(5 Marks)**
 - b) You are evaluating a potential investment in a tech startup. The expected returns and their probabilities are as follows:
Return of 15% with a probability of 0.40
Return of 5% with a probability of 0.30
Return of -9% with a probability of 0.30

Required:

- i. Calculate the expected return, variance and standard deviation of the returns of the investment. **(5 Marks)**
- ii. What factors might you consider in addition to the calculated expected return and risk when making your investment choice? **(5 Marks)**
- c) You have a sum of \$10 000 which you wish to invest for a period of 3 years. You have the following investment choices over the 3 year investment period
 - (i) Invest at 10% per annum
 - (ii) Invest at 9.2 % per annum, compounded half-annually
 - (iii) Invest at 9% per annum, compounded quarterly
 - (iv) Invest at 8.4% per annum , compounded monthly

You are to advise on the best investment option **(5 marks)**

QUESTION 3 (25 Marks)

- a) You are the financial manager of Dino Ltd which is planning to expand its operations. The board is considering various sources of long-term finance to fund this expansion.
- i Discuss the different sources of long-term finance available to your company, including their advantages and disadvantages. **(12 Marks)**
 - ii Explain the key factors that influence your company's choice of financing sources **(5 Marks)**
- b) A company has the following capital structure:
- Cost of Debt: 6%
 - Cost of Equity: 10%
 - Market Value of Debt: \$200,000
 - Market Value of Equity: \$300,000
- iii Calculate the WACC for the company. Discuss how WACC is used in investment decisions. **(8 Marks)**

QUESTION 4 (25 Marks)

- a) You are part of the financial management team at Tanu Ltd evaluating a potential project that requires an initial investment of \$110,000, with the following projected cash flows over three years:
- Year 1: \$40,000
 - Year 2: \$50,000
 - Year 3: \$60,000
- The required rate of return is 10%.
- Required:**
- Calculate the Net present value, payback period and IRR **(15 Marks)**
- Discuss are the advantages and limitations of using these techniques? **(10 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 $\frac{1-(1+r)^{-n}}{r}$

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	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 (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	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:

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

- (ii) Ordinary (equity) shares, paying a constant annual dividend, d , in perpetuity, where P_0 is the ex-div value:

$$P_0 = \frac{d}{k_e}$$

- (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:

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

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

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

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 :

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

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

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

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

$$k_e = \frac{d}{P_0}$$

- (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:

$$k_e = R_f + [R_m - R_f]\beta$$

- (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:

$$[1 + \text{nominal (money) rate}] = [1 + \text{real interest rate}][1 + \text{inflation rate}]$$