kasneb

CPA PART III SECTION 5

ADVANCED FINANCIAL MANAGEMENT

WEDNESDAY: 27 November 2019.   **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a)   (i)   Distinguish between "insolvency" and "bankruptcy" as used in business restructuring.   **(2 marks)**

      (ii)   Highlight four causes of business failure.   **(4 marks)**

(b)   Sunny Technologies Ltd. is considering investing Sh.50 million in a new machine to manufacture computer micro chips with an expected useful life of 5 years and no salvage value. It is expected that 20 million units of micro chips will be sold each year at Sh.3.00 per unit. Variable production costs are expected to be Sh.1.65 per unit, while incremental fixed costs will be Sh.10 million per annum.

     The cost of capital is 12%.

     Required:

     Evaluate the sensitivity of the project's net present value (NPV) to the following changes:

      (i)   Sales volume.   **(3 marks)**

      (ii)   Sales price.   **(3 marks)**

      (iii)   Variable costs.   **(3 marks)**

(c)   Further analysis of the company in (b) above suggests that sales volumes could depend on expected economic state as follows:

Economic state	Poor	Normal	Good
Probability	0.30	0.60	0.10
Annual sales volume (units)	17,500,000	20,000,000	22,500,000

     Required

     The expected net present value (NPV) of the project using scenario analysis.   **(5 marks)**

                                      (Total: 20 marks)

QUESTION TWO

(a)   Kanga Limited is considering the design of a new conveyor system. The management must choose among the following three alternative courses of action:

     Option 1
     The firm could sell the design outright to another corporation with payments over 2 years.

     Option 2
     The firm could license the design to another manufacturer for a period of 5 years which is likely to be the product life cycle of the conveyor system.

     Option 3
     The company could manufacture and market the system itself. This alternative will result in 6 years of cash inflows.

Cash flows associated with each alternative are as shown below:

Alternative	Sell	License	Manufacture
Initial investment, I_o (Sh.)	400,000	400 000	900,000

Year		Cash inflows (Sh.)	
1	400,000	500,000	400,000
2	500,000	200,000	500,000
3	-	160,000	400,000
4	-	120,000	400,000
5	-	80,000	400,000
6	-	-	400,000

The company has a cost of capital of 12%.

Required:
Advise Kanga Limited on the best alternative based on:

(i)   Net present value (NPV) approach.   (3 marks)

(ii)   Annualised net present value (ANPV) approach.   (3 marks)

(iii)   Compare and contrast your results obtained in (a) (i) and (ii) above.   (2 marks)

(b)   The finance director of Babito Ltd. wishes to determine the company's optimal capital structure. The cost of debt varies according to the level of gearing of the company as follows:

Percentage debt (%)	Pre-tax cost of debt (%)
10	6.5
20	7.1
30	7.8
40	8.5
50	10
60	12
70	15

Additional information:
1.   The company's ungeared equity beta is 0.85.
2.   The risk-free interest rate is 6%.
3.   The market return is 14%.
4.   Corporate tax rate is 30%.

Required:
Advise the company on the optimal weighted average cost of capital (WACC).   (12 marks)

(Total: 20 marks)

QUESTION THREE

(a)   Summarise five functions of the International Monetary Fund (IMF).   (5 marks)

(b)   Duncan Kipchumba has an investment capital of Sh.1,000,000. He wishes to invest the fund in two securities, X and Y in the following proportion; Sh.200,000 in security X and Sh.800,000 in security Y.

The return on these two securities depend on the state of the economy, as shown below:

State of economy	Probability	Returns on security X	Returns on security Y
Boom	0.40	18%	24%
Normal	0.50	14%	22%
Recession	0.10	12%	21%

Required:

(i)   The expected return on the portfolio.   (3 marks)

(ii)   The correlation coefficient between security X and security Y.   (4 marks)

(2 marks)

(iii)   The portfolio risk.

(2 marks)

(iv)   The reduction in risk due to portfolio diversification.

(c)   Job Ochieng, an investor, believes that there are three important factors that determine the expected return for a particular common stock. Job uses the following factor betas and factor risk premiums:

Factor	Factor beta	Factor risk premium
1	0.70	2.5%
2	1.20	5.0%
3	−0.10	6.0%

The risk-free rate is 5%.

Required:

(2 marks)

(i)   The expected return for the stock using the arbitrage pricing theory (APT) model.

(ii)   Explain two differences between capital asset pricing model (CAPM) and arbitrage pricing theory (APT) model.

(2 marks)

(Total: 20 marks)

QUESTION FOUR

(a)   Distinguish between the following terms as used in the context of derivatives market:

(2 marks)

(i)   "Currency option" and "currency swap".

(2 marks)

(ii)   "Interest rate swap" and "interest rate collar".

(2 marks)

(iii)   "Hedgers" and speculators".

(b)   Property A and property B are categorised under the real estate category. Property A is all equity financed while property B is financed partly using debt and partly by equity finance.

Both properties generated operating profit (EBIT) of Sh.41,245,900 annually. This is expected to remain constant each year in perpetuity. Unlike property A which is wholly equity financed, property B is financed partly by equity and partly by 10% debt of Sh.215,000,000.

The cost of equity is 12% for both properties and there are no corporation taxes. Each unit of debt is trading at par.

Required:

(4 marks)

The current value of each property using the Net Income (NI) approach.

(c)   Smoothdrive Ltd., a motor vehicle assembly company issued a 10 year, 16%, Sh.100 million par value bond five years ago. The bond was issued at 2% discount and issuing costs amounted to Sh.2 million.

Due to the decline in Treasury bill rates in the recent past, interest rates in the money market have been falling presenting favourable opportunities for refinancing. A financial analyst engaged by the company to assess the possibility of refinancing the debt reports that a new Sh.100 million par value, 12%, 5-year bond could be issued by the company. Issuing costs for the new bond will be 5% of the par value and a discount of 3% will have to be given to attract investors.

The old bond can be redeemed at 10% premium and in addition, two months interest penalty will have to be paid on redemption. All bond issue expenses (including the interest penalty) are amortised on a straight-line basis over the life of the bond and are allowable for corporate tax purposes.

The applicable corporate tax rate is 40% and the after tax cost of debt to the company is approximately 7%.

Required:

(4 marks)

(i)   The initial investment required to issue the new bond.

(4 marks)

(ii)   Annual cash flow savings (if any) expected from the bond refinancing decision.

(iii)   The net present value (NPV) of the refinancing decision.   (1 mark)

(iv)   Advise the company on whether to refinance the bond based on your results in (c) (iii) above.   (1 mark)
(Total: 20 marks)

QUESTION FIVE
(a)   Briefly describe the following types of mergers:

(i)   Horizontal.   (1 mark)

(ii)   Vertical.   (1 mark)

(iii)   Congeneric.   (1 mark)

(iv)   Conglomerate.   (1 mark)

(b)   A Ltd. and B Ltd. are companies operating in the same line of business. In the past few years, A Ltd. has experienced stiff competition from B Ltd. to an extent that A Ltd. is now contemplating acquiring B Ltd. in order to consolidate its market share.

The following financial data is available about the two companies:

	A Ltd.	B Ltd.
Annual sales (Sh. million)	400	60
Net income (Sh. million)	40	9
Ordinary shares outstanding (million)	10	3
Earnings per share (EPS)	Sh.4.0	Sh.3.0
Market price per share (MPS)	Sh.60	Sh.30

Both companies are in the 30% income tax bracket.

Required:
(i)   The maximum exchange ratio that A Ltd. should agree to assuming that it does not expect dilution in its post acquisition earnings per share (EPS).   (2 marks)

(ii)   The total premium the shareholders of B Ltd. would agree to receive at the exchange ratio in (b) (i) above.   (2 marks)

(iii)   A Ltd.'s post acquisition earnings per share (EPS) assuming that the two companies agree on an offer price of Sh.30.   (2 marks)

(iv)   A Ltd.'s post acquisition earnings per share (EPS) assuming that for every 100 ordinary shares of B Ltd.. the shareholders are offered two, 12 % debentures of Sh.500 par value.   (3 marks)

(c)   Twiga Limited has 500,000 ordinary shares trading at Sh.150 each in the Securities Exchange.

Additional information:
1.   The dividend payable in one year period is Sh.3 per share.
2.   An investment opportunity worth Sh.25 million is to be undertaken. The profit to be earned is Sh.15 million.
3.   The cost of capital for the company is 10%.

Required:
Using Modigliani and Miller approach, show that the payment of dividends does not affect the value of the firm.
                                                                                  (7 marks)
(Total: 20 marks)

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Present Value of 1 Received at the End of n Periods:

$$PVIF_{r,n} = 1/(1+r)^n = (1+r)^{-n}$$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%	36%
1	.9901	.9804	.9709	.9615	.9524	.9434	.9346	.9259	.9174	.9091	.8929	.8772	.8696	.8621	.8475	.8333	.8065	.7813	.7576	.7353
2	.9803	.9612	.9426	.9246	.9070	.8900	.8734	.8573	.8417	.8264	.7972	.7695	.7561	.7432	.7182	.6944	.6504	.6104	.5739	.5407
3	.9706	.9423	.9151	.8890	.8638	.8396	.8163	.7938	.7722	.7513	.7118	.6750	.6575	.6407	.6086	.5787	.5245	.4768	.4348	.3975
4	.9610	.9238	.8885	.8548	.8227	.7921	.7629	.7350	.7084	.6830	.6355	.5921	.5718	.5523	.5158	.4823	.4230	.3725	.3294	.2923
5	.9515	.9057	.8626	.8219	.7835	.7473	.7130	.6806	.6499	.6209	.5674	.5194	.4972	.4761	.4371	.4019	.3411	.2910	.2495	.2149
6	.9420	.8880	.8375	.7903	.7462	.7050	.6663	.6302	.5963	.5645	.5066	.4556	.4323	.4104	.3704	.3349	.2751	.2274	.1890	.1580
7	.9327	.8706	.8131	.7599	.7107	.6651	.6227	.5835	.5470	.5132	.4523	.3996	.3759	.3538	.3139	.2791	.2218	.1776	.1432	.1162
8	.9235	.8535	.7894	.7307	.6768	.6274	.5820	.5403	.5019	.4665	.4039	.3506	.3269	.3050	.2660	.2326	.1789	.1388	.1085	.0854
9	.9143	.8368	.7664	.7026	.6446	.5919	.5439	.5002	.4604	.4241	.3606	.3075	.2843	.2630	.2255	.1938	.1443	.1084	.0822	.0628
10	.9053	.8203	.7441	.6756	.6139	.5584	.5083	.4632	.4224	.3855	.3220	.2697	.2472	.2267	.1911	.1615	.1164	.0847	.0623	.0462
11	.8963	.8043	.7224	.6496	.5847	.5268	.4751	.4289	.3875	.3505	.2875	.2366	.2149	.1954	.1619	.1346	.0938	.0662	.0472	.0340
12	.8874	.7885	.7014	.6246	.5568	.4970	.4440	.3971	.3555	.3186	.2567	.2076	.1869	.1685	.1372	.1122	.0757	.0517	.0357	.0250
13	.8787	.7730	.6810	.6006	.5303	.4688	.4150	.3677	.3262	.2897	.2292	.1821	.1625	.1452	.1163	.0935	.0610	.0404	.0271	.0184
14	.8700	.7579	.6611	.5775	.5051	.4423	.3878	.3405	.2992	.2633	.2046	.1597	.1413	.1252	.0985	.0779	.0492	.0316	.0205	.0135
15	.8613	.7430	.6419	.5553	.4810	.4173	.3624	.3152	.2745	.2394	.1827	.1401	.1229	.1079	.0835	.0649	.0397	.0247	.0155	.0099
16	.8528	.7284	.6232	.5339	.4581	.3936	.3387	.2919	.2519	.2176	.1631	.1229	.1069	.0930	.0708	.0541	.0320	.0193	.0118	.0073
17	.8444	.7142	.6050	.5134	.4363	.3714	.3166	.2703	.2311	.1978	.1456	.1078	.0929	.0802	.0600	.0451	.0258	.0150	.0089	.0054
18	.8360	.7002	.5874	.4936	.4155	.3503	.2959	.2502	.2120	.1799	.1300	.0946	.0808	.0691	.0508	.0376	.0208	.0118	.0068	.0039
19	.8277	.6864	.5703	.4746	.3957	.3305	.2765	.2317	.1945	.1635	.1161	.0829	.0703	.0596	.0431	.0313	.0168	.0092	.0051	.0029
20	.8195	.6730	.5537	.4564	.3769	.3118	.2584	.2145	.1784	.1486	.1037	.0728	.0611	.0514	.0365	.0261	.0135	.0072	.0039	.0021
25	.7798	.6095	.4776	.3751	.2953	.2330	.1842	.1460	.1160	.0923	.0588	.0378	.0304	.0245	.0160	.0105	.0046	.0021	.0010	.0005
30	.7419	.5521	.4120	.3083	.2314	.1741	.1314	.0994	.0754	.0573	.0334	.0196	.0151	.0116	.0070	.0042	.0016	.0006	.0002	.0001
40	.6717	.4529	.3066	.2083	.1420	.0972	.0668	.0460	.0318	.0221	.0107	.0053	.0037	.0026	.0013	.0007	.0002	.0001		
50	.6080	.3715	.2281	.1407	.0872	.0543	.0339	.0213	.0134	.0085	.0035	.0014	.0009	.0006	.0003	.0001				
60	.5504	.3048	.1697	.0951	.0535	.0303	.0173	.0099	.0057	.0033	.0011	.0004	.0002	.0001						

* The factor is zero to four decimal places

Present Value of an Annuity of 1 Per Period for n Periods:

$$PVIF_{r,t} = \sum_{t=1}^{n} \frac{1}{(1+r)^t} = \frac{1 - \frac{1}{(1+r)^n}}{r}$$

Number of payments	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8772	0.8696	0.8621	0.8475	0.8333	0.8065	0.7813	0.7576
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.6901	1.6467	1.6257	1.6052	1.5656	1.5278	1.4568	1.3916	1.3315
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4018	2.3216	2.2832	2.2459	2.1743	2.1065	1.9813	1.8684	1.7663
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.0373	2.9137	2.8550	2.7982	2.6901	2.5887	2.4043	2.2410	2.0957
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6048	3.4331	3.3522	3.2743	3.1272	2.9906	2.7454	2.5320	2.3452
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.1114	3.8887	3.7845	3.6847	3.4976	3.3255	3.0205	2.7594	2.5342
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.5638	4.2883	4.1604	4.0386	3.8115	3.6046	3.2423	2.9370	2.6775
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	4.9676	4.6389	4.4873	4.3436	4.0776	3.8372	3.4212	3.0758	2.7860
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.3282	4.9464	4.7716	4.6065	4.3030	4.0310	3.5655	3.1842	2.8681
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.6502	5.2161	5.0188	4.8332	4.4941	4.1925	3.6819	3.2689	2.9304
11	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	5.9377	5.4527	5.2337	5.0286	4.6560	4.3271	3.7757	3.3351	2.9776
12	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.1944	5.6603	5.4206	5.1971	4.7932	4.4392	3.8514	3.3868	3.0133
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.4235	5.8424	5.5831	5.3423	4.9095	4.5327	3.9124	3.4272	3.0404
14	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.6282	6.0021	5.7245	5.4675	5.0081	4.6106	3.9616	3.4587	3.0609
15	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	6.8109	6.1422	5.8474	5.5755	5.0916	4.6755	4.0013	3.4834	3.0764
16	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	6.9740	6.2651	5.9542	5.6685	5.1624	4.7296	4.0333	3.5026	3.0882
17	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.1196	6.3729	6.0472	5.7487	5.2223	4.7746	4.0591	3.5177	3.0971
18	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.2497	6.4674	6.1280	5.8178	5.2732	4.8122	4.0799	3.5294	3.1039
19	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.3658	6.5504	6.1982	5.8775	5.3162	4.8435	4.0967	3.5386	3.1090
20	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.4694	6.6231	6.2593	5.9288	5.3527	4.8696	4.1103	3.5458	3.1129
25	22.0232	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	7.8431	6.8729	6.4641	6.0971	5.4669	4.9476	4.1474	3.5640	3.1220
30	25.8077	22.3965	19.6004	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737	9.4269	8.0552	7.0027	6.5660	6.1772	5.5168	4.9789	4.1601	3.5693	3.1242
40	32.8347	27.3555	23.1148	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574	9.7791	8.2438	7.1050	6.6418	6.2335	5.5482	4.9966	4.1659	3.5712	3.1250
50	39.1961	31.4236	25.7298	21.4822	18.2559	15.7619	13.8007	12.2335	10.9617	9.9148	8.3045	7.1327	6.6605	6.2463	5.5541	4.9995	4.1666	3.5714	3.1250
60	44.9550	34.7609	27.6756	22.6235	18.9293	16.1614	14.0392	12.3766	11.0480	9.9672	8.3240	7.1401	6.6651	6.2402	5.5553	4.9999	4.1667	3.5714	3.1250