KASNEB

CPA PART III SECTION 5

ADVANCED FINANCIAL MANAGEMENT

THURSDAY: 24 November 2016. **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) Summarise three assumptions of the Grossman-Hart Model (1986). (6 marks)

(b) SKB Ltd. is considering a proposal to manufacture a new drug named "Millenium". The drug will be manufactured using a machine which will cost Sh.13 million.

The cash flows and drug life relating to "Millenium" have been estimated as stochastic exogenous variables with the following distributions:

Annual after tax cash flow (Sh."000")	Probability	Drug life in years	Probability
1,000	0.02	3	0.05
1,500	0.03	4	0.10
2,000	0.15	5	0.30
2,500	0.15	6	0.25
3,000	0.30	7	0.15
3,500	0.20	8	0.10
4,000	0.15	9	0.03
		10	0.02

The minimum required rate of return from this investment is 16%.

The company has approached you as a financial management expert to perform an analysis of the above project.

Required:

(i) Using the following random numbers, perform 10 simulation runs of the net present value (NPV) of this project.

5397	6699	3081	1909	3167	8170	3875
4883	9033	5852				

(12 marks)

(ii) Determine the expected net present value (NPV) of the project. (2 marks)

(Total: 20 marks)

www.kasnebnotes.co.ke

QUESTION TWO

(a) Explain three challenges likely to be encountered in the application of the capital asset pricing model (CAPM). (6 marks)

(b) Moses Mapesa is in the process of evaluating investments in two companies whose percentage returns in the last 10 years are as shown below:

Year / Company and percentage return	1	2	3	4	5	6	7	8	9	10
FS Ltd. (%)	37	24	-7	6	18	32	-5	21	18	6
SN Ltd. (%)	32	29	-12	1	15	30	0	18	27	10

Required:

(i) Correlation coefficient of the companies' returns. (6 marks)

(ii) Portfolio risk assuming equal weighting. (2 marks)

(c) Mary Chege has been investing in the shares of various companies quoted on the securities exchange. Currently, she holds a portfolio of shares in four companies; W, X, Y and Z.

The following information has been provided:

Company	Number of shares held	Equity beta	Market price per share (Sh.)	Expected return on equity
W	10,000	1.12	130	18%
X	15,000	0.89	100	23%
Y	15,000	0.70	90	11%
Z	10,000	1.60	160	17%

The current market return is 14% per annum and the Treasury Bill's yield is 9% per annum.

Required:

(i) The risk of Mary Chege's portfolio relative to that of the market. (4 marks)

(ii) Determine whether Mary Chege should change the composition of her portfolio. (2 marks)

(Total: 20 marks)

QUESTION THREE

(a) Explain three assumptions of the traditional theories of capital structure. (6 marks)

(b) Majuu Ltd. is just about to commence operations as an international trading company. The firm will have a book value of assets of Sh.320 million and it expects to earn 16% return on these assets before interest and taxes. However, because of certain tax arrangements with foreign governments, the company will not pay any taxes.

It is known that the capitalisation rate for an all equity firm in this business is 12%. The company can borrow debt finance at the rate of 7% per annum. The management is in the process of deciding how to raise the required Sh.10 million debt finance. Assume that the Modigliani and Miller (MM) assumptions apply.

Required:

Using the MM model without taxes, determine:

(i) The current value of the unlevered firm. (2 marks)

(ii) The current value of a levered firm if it uses Sh. 10 million of 7% debt. (2 marks)

(iii) The weighted average cost of capital (WACC) of a levered firm at a debt level of 7%, Sh.10 million. (3 marks)

(c) Assuming that the company in (b) above now pays taxes at the rate of 30%, compute the following in a Modigliani and Miller (MM) world:

(i) The current value of the firm if it uses no debt. (2 marks)

(ii) The current value of the firm if it uses the debt level of 7%, Sh.10 million. (2 marks)

(iii) The weighted average cost of capital (WACC) at 7% debt level of Sh.10 million. (3 marks)

(Total: 20 marks)

QUESTION FOUR

(a) In relation to corporate restructuring and re-organisation, distinguish between the following terms:

(i) "Boot strapping" and "management buyout". (2 marks)

(ii) "Sell off" and "spin off". (2 marks)

(b) Kubwa Ltd., a supermarket chain, is proposing to take-over Small Ltd., a smaller firm in the same industry. In its bid, Kubwa Ltd. has offered four of its shares for every three shares of Small Ltd.

www.kasnebnotes.co.ke

The following are the latest summarised accounts of the two companies:

Statements of financial position

	Kubwa Ltd.		Small Ltd.	
Non-current assets:	**Sh."million"**	**Sh."million"**	**Sh."million"**	**Sh."million"**
Land		966		84.6
Other non-current assets		300		34
		1,266		118.6
Current assets:				
Inventory	656		102.8	
Accounts receivable	24		12.6	
Cash	88		10.6	
	768		126.0	
Current liabilities:				
Trade payables	894		92.2	
Other accruals	68		8	
	962		100.2	
Net current assets		(194)		25.8
Long-term liabilities:				
14% loan stock	400		-	-
Floating rate loans	228		35	
		(628)		(35)
Total net assets		444		109.4
Shareholders' funds:				
Ordinary share capital		150		40
Reserves		294		69.4
Total shareholders' funds		444		109.4

Income statement

	Kubwa Ltd. Sh."million"	Small Ltd. Sh."million"
Turnover	2,260	362
Earnings before interest and tax	230	28
Interest	(80)	(4)
Profit before tax	150	24
Taxation	(50)	(8)
Earnings available to shareholders	100	16
Dividends	(48)	(10)
Retained earnings	52	6

Additional information:

1. The par value of the shares of Kubwa Ltd. is Sh.0.50 while the par value of Small Ltd's shares is Sh.1.00.
2. The current share price of Kubwa Ltd. is Sh.4.64 while that of Small Ltd. is Sh.5.90. The current loan stock price of Small Ltd. is Sh. 125.
3. Recent annual growth trends are as follows:

	Kubwa Ltd.	Small Ltd.
Dividends	7%	8%
Earnings per share	7%	10%

4. The following will take place after the acquisition:
   - Surplus warehousing facilities will be sold for Sh.13.6 million.
   - Sh. 18 million will be paid out for redundancy of employees.
   - There will be savings of Sh.5.4 million from wages every year for at least five years.
5. Kubwa Ltd. has an estimated cost of equity of 14.5% and a weighted average cost of capital of 12%.
6. Small Ltd. has an estimated cost of equity of 13%.

Required:

(i) Evaluate whether the bid is likely to be viewed favourably by the shareholders of both Kubwa Ltd. and Small Ltd. (10 marks)

(ii) Discuss three factors that are likely to influence the views of the shareholders in the analysis in (b) (i) above. (6 marks)

(Total: 20 marks)

www.kasnebnotes.co.ke

QUESTION FIVE

(a) Explain how currency swaps could be used to hedge against the foreign exchange operating exposure of a firm. (4 marks)

(b) International Bank expects that the Mexican Peso (MXP) will depreciate against the US dollar (USD) from its spot rate of $0.15 to $0.14 in ten days. The following interbank lending and borrowing rates exist:

	Annual lending rate	Annual borrowing rate
US dollars (USD)	8.0%	8.3%
Mexican Peso (MXP)	8.5%	8.7%

Assume that International Bank has a borrowing capacity of either 10 million USD or 70 million MXP in the interbank market, depending on which currency it wants to borrow. Further, assume that one year has 360 days.

Required:

(i) Demonstrate how International Bank could capitalise on its expectations without using deposited funds. (5 marks)

(ii) Estimate the profits that could be generated from the strategy adopted in (b) (i) above. (1 mark)

(c) Assume all the information provided in (b) above with this exception: International Bank expects the MXP to appreciate from its present spot rate of $0.15 to $0.17 in 30 days.

Required:

(i) Demonstrate how International Bank could capitalise on its expectations without using deposited funds. (5 marks)

(ii) Estimate the profits that could be generated from the strategy adopted in (c) (i) above. (1 mark)

(d) Highlight two shortcomings of the Black-Scholes option pricing model. (4 marks)

(Total: 20 marks)

....

www.kasnebnotes.co.ke

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

www.kasnebnotes.co.ke