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CIFA PART II SECTION 4

EQUITY INVESTMENTS ANALYSIS

THURSDAY: 24 May 2018. 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) Explain the role of the following participants of your country's securities exchange:

    (i) Market markers. (1 mark)

    (ii) Commission brokers. (1 mark)

    (iii) Floor brokers. (1 mark)

    (iv) Registered traders. (1 mark)

(b) Shangilia Limited's share is currently trading at Sh.25 at the securities exchange. The estimated earnings per share (EPS) is Sh.1.875; the dividend payout ratio is 35%, and it is estimated that the price to earnings (P/E) ratio in one year's time will be 15.

Required:
The expected rate of return from the company's share in the next one year. (3 marks)

(c) Tarino Limited paid a dividend per share (DPS) of Sh.1 yesterday. It is expected that the dividend will grow at a rate of 10% per annum for the first 4 years, 8% per annum for the next 10 years and thereafter grow at a rate of 5% per annum perpetually. The investor's expected rate of return is 12%.

Required:
The value of Tarino Limited's share today. (6 marks)

(d) Discuss three contrary opinion rules in relation to technical analysis. (3 marks)

(e) Jack Jester, an inexperienced and unqualified person working in a financial analyst's office claims to have a superior method of picking undervalued shares. He claims that the best way to find the value of a share is to divide earnings before interest, tax, depreciation and amortisation (EBITDA) by the risk-free rate of a bond and is urging your client to invest in Whole Foods Ltd.'s share. Jack Jester argues that Whole Foods Ltd.'s EBITDA of Sh.1,580 million divided by the long-term government bond coupon rate of 7% gives a total value of Sh.22,571.4 million. With 318 million shares outstanding, the market value per share using this method is Sh.70.98. The shares of Whole Foods Ltd.'s market price per share (MPS) is Sh.36.50.

Required:
Argue four cases against the valuation approach used by Jack Jester. (4 marks)
(Total: 20 marks)

QUESTION TWO
(a) In an industry, the largest two firms have a market share of 20% each while six other firms have a market share of 10% each.

Required:
    (i) The five firms concentration ratio. (1 mark)

    (ii) The Herfindahl – Hirschman Index (HHI) for the five firms. (2 marks)

    (iii) Interpret the results obtained in (a) (ii) above. (1 mark)

    (iv) Examine two limitations of using HHI to assess the competitiveness of a market. (2 marks)

(b) Mohamed Komora, an equity analyst at Wealth Investment and Consultancy Services Limited is preparing a report on his home country manufacturing firm in the beverage industry. He has gathered the information given below:

Ratios for Beverage Industry Index and Broad Stock market Index

Year	2012	2013	2014	2015	2016	2017
Return on equity						
Beverage industry index (%)	12.5	12.0	15.4	19.6	21.6	21.6
Market index	10.2	12.4	14.6	19.9	20.4	21.2
Average price to earnings (P/E) ratio						
Beverage industry index	28.5 times	23.2 times	19.6 times	18.7 times	18.5 times	16.2 times
Market index	10.2	12.4	14.6	19.9	18.1	19.1
Dividend pay-out ratio						
Beverage industry index (%)	8.8	8.0	12.1	12.1	14.3	17.1
Market index	39.2	40.1	38.6	43.7	41.8	39.1
Average dividend yield						
Beverage industry index (%)	0.3	0.3	0.6	0.7	0.8	1.0
Market index	3.8	3.2	2.6	2.2	2.3	2.1

Required:

(i) Using the above information, determine the phase of industry life cycle in which the beverage industry is. (2 marks)

(ii) Citing four reasons, justify your answer in (b) (i) above. (4 marks)

(c) Caroline Anyango, a Certified Investment and Financial Analyst (CIFA) has been provided with the following information relating to two private companies for analysis:

Company A:

Working capital	Sh.400,000
Non-current assets	Sh.1,600,000
Normalised earnings	Sh.225,000
Required return on working capital	5%
Required return on non-current assets	12%
Growth rate of residual income	3%
Discount rate for intangible assets	18%

Company B:

Risk-free rate	1.00%
Equity risk premium	6.00%
Beta	1.50
Small stock premium	4.00%
Company-specific risk premium	1.50%
Industry risk premium	1.20%

Required:

(i) Using the excess earnings method, determine the value of company A. (4 marks)

(ii) Estimate the required rate of return for company B using the expanded capital asset pricing model (CAPM). (2 marks)

(iii) Calculate the required rate of return for company B using the built up approach. (2 marks)

(Total: 20 marks)

QUESTION THREE

(a) Summarise four reasons why financial analysts prefer to use price to book (P/B) value as a valuation measure in equity analysis. (4 marks)

(b) Sahala Limited is sensitive to the economic cycle. Job Chege, an equity analyst at Blue Chip Capital postulates that the six years ending 2017 reflect a business cycle for the company. He has collected the following data about the company:

Year	2012	2013	2014	2015	2016	2017
Adjusted earnings per share (EPS) (Sh.)	1.30	2.65	5.50	4.30	3.25	1.00
Return on equity (ROE) (%)	0.04	0.13	0.22	0.18	0.12	0.03
Book value per share (BVPS) (Sh.)						32

The market price per share (MPS) of Sahala Limited is Sh.30.

Required:

(i) Normalised EPS for Sahala Limited. (2 marks)

(ii) Price to earnings (P/E) ratio based on average ROE method. (2 marks)

(c) Suggest three measures that equity managers could undertake to increase cash flow return on investment (CFROI). (3 marks)

(d) XYZ Limited has invested Sh.100 million capital in assets.

The following information is provided:

1. The firm's after-tax operating income on assets is Sh.15 million. This value is expected to be sustained in the future.
2. The company's cost of capital is 10% per annum and is projected to remain constant in the foreseeable future.
3. The firm is expected to make investments of Sh.10 million at the beginning of each of the next five years.
4. All assets and investments are expected to have infinite life. Thus, the assets in place and the investment made in the first five years will have a return of 15% per annum in perpetuity, with no growth.
5. After year five, the company will continue to make investment which will grow at a rate 5% per annum. The new investment is expected to have a return on capital of 10% which will also be the cost of capital.

Required:

(i) The value of the firm using the economic value added (EVA) approach. (5 marks)

(ii) The value of the firm using the market value added (MVA) approach. (2 marks)

(iii) Comment on your results in (d)(i) above. (2 marks)

(Total: 20 marks)

QUESTION FOUR

(a) In relation to dividend discount model (DDM):

(i) Describe one strength of the two stage DDM in comparison to the constant growth DDM. (2 marks)

(ii) Explain one weakness common in all DDMs. (2 marks)

(b) Kithaka Lenayapa is an analyst at a leading investment bank and is responsible for the following four companies namely; A, B, C and D. All the four companies operate in diverse sectors of the domestic economy. He has gathered the following information regarding the companies:

Company	A	B	C	D
Rate of return on equity (ROE)	0.20	0.12	0.15	0.10
Required rate of return	0.15	0.10	0.12	0.08
Dividend payout ratio (%)	60	50	40	45
Free cash flow to equity (FCFE)	1.25	1.50	1.40	2.00
Profit margin (%)	10	12	8	15

Required:

(i) Justified price to book (P/B) ratio for company A. (2 marks)

(ii) Justified price to sales (P/S) ratio for company B. (2 marks)

(iii) Justified forward price to earnings (P/E) ratio for company C. (2 marks)

(iv) Justified price to cash flow (P/CF) ratio for company D. (2 marks)

(c)   Rhino Limited has been unprofitable and has not been paying dividend on its ordinary shares. An analyst decides to value the company using his forecasts on free cash flow to equity (FCFE) in 2018.

He gathers the following information:

1.   The company has 17 million shares outstanding.
2.   Sales will be Sh.5.5 million in 2019, increasing at a rate of 28% annually for the next four years (through 2023).
3.   Net income will be 32% of sales.
4.   Investment in fixed assets will be 35% of sales, investment in working capital will be 6% of sales, depreciation will be 9% of sales.
5.   20% of the investment in assets will be financed with debt.
6.   Interest expense will be only 2% of sales.
7.   The tax rate will be 10%. The company has a beta of 2.1, the risk-free rate is 6.4% and the equity risk premium is 5.0%.
8.   At the end of year 2023, the analyst projects that Rhino Limited will sell for 18 times earnings.

Required:
The value of one ordinary share of Rhino Limited.   (8 marks)
(Total: 20 marks)

QUESTION FIVE
(a)   Highlight four advantages of convertible preference shares.   (4 marks)

(b)   You have recently joined Gold Invest, an asset management firm specialised in equity investments, as a junior analyst. Eric Kibet, the chief investment officer (CIO) at the firm has a business deal of valuing Horizon Limited and has tasked you to undertake the assignment.

You make the following assumptions about the company:

1.   Book value per share (BVPS) is estimated at Sh.9.62 on 31 December 2017.
2.   Earnings per share (EPS) will be 22% of the beginning book value per share for the next 8 years.
3.   Cash dividends per share paid will be 30% of earnings per share (EPS).
4.   At the end of the 8-year period, the market price per share (MPS) will be three times that of the book value per share.
5.   The required rate of return is 8.30%.

Required:
Estimate the value per share of Horizon Limited using the residual income model.   (8 marks)

(c)   If asked on the value driver with the greatest impact on multiples, analysts and investors would likely answer "growth". This is explicitly true, but the impact of growth depends on its source and nature. There are several sources of growth and each will have a different effect on value creation and thus share prices.

Required:
With respect to the above statement, explain the four primary sources of growth.   (4 marks)

(d)   The market price per share of Dominion Limited is Sh.35. Martin Wambua has Sh.1,000,000 to invest. He borrows an additional Sh.1,000,000 from Rafiki Stock Brokers Ltd. and invests Sh.2,000,000 in Dominion Limited shares.

Required:
The price at which a margin call will first occur assuming a maintenance margin of 30%.   (4 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