



CIFA PART II SECTION 4

EQUITY INVESTMENTS ANALYSIS

THURSDAY: 20 May 2021.

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 following types of market organisation used in the securities market:

- (i) Auction market. (1 mark)
- (ii) Brokered market. (1 mark)
- (iii) Dealer market. (1 mark)

(b) The following information relates to the central order book of Dolphin Ventures Limited, a company quoted at the Securities Exchange:

Sell orders		Buy orders	
Quantity	Limit (Sh.)	Quantity	Limit (Sh.)
5,000	151	5,000	146
20,000	150	20,000	144
10,000	149	10,000	143
5,000	148	20,000	142
5,000	147	10,000	141

Required:

- (i) Alfred Ngugi has entered a market order to purchase 15,000 shares of Dolphin Ventures Limited. Advise him on the price at which he should buy the shares. (2 marks)
- (ii) Compute the average trade price of the shares based on your answer in (b) (i) above. (1 mark)
- (iii) Suppose that Alfred Ngugi had instead wanted to sell 10,000 shares of the company. Determine the price at which he would sell the shares. (2 marks)
- (iv) Outline four macroeconomic indicators that could influence the securities market in your country. (4 marks)

(c) An analyst gathered the following information regarding Beta Ltd.:

Expected earnings per share for 2020	Sh.3.34
Retention rate	0.40
Required rate of return	12%
Current share price	Sh.40
Dividends are paid out at the end of the year and are expected to grow at the rate of 6% into perpetuity.	

Required:

- (i) The fraction of the company's leading price to earnings ratio that comes from the present value of growth opportunities (PVGO). (5 marks)
- (ii) Explain three causes of a negative present value of growth opportunities (PVGO). (3 marks)

(Total: 20 marks)

QUESTION TWO

- (a) Examine five steps that are involved in the equity valuation process. (5 marks)
- (b) Using relevant diagrams, explain three types of technical analysis charts that are used by equity analysts while forecasting the movement of the prices of shares. (6 marks)

- (c) An analyst gathers the following information about Zeb Limited shares:

Current market price per share	Sh.22.56
Current annual dividend per share	Sh.1.06
Annual dividend growth rate for years 1 – 4	9.00%
Annual dividend growth rate for years 5 and above	4.00%
Required rate of return	12%

Required:

Using the Two-Stage Dividend Discount Model, compute the intrinsic value of the share and comment on the results. (5 marks)

- (d) Smartprint Ltd. is a large-scale printing firm quoted on the Securities Exchange. The company is considering investing Sh.500 million in new printing equipment. The present value of the future after-tax cash flows resulting from the equipment is Sh.750 million. Smartprint Ltd. currently has 100 million shares outstanding, with a current market price of Sh.45 per share. Assume that this project's new information is independent of other expectations about the company.

Required:

- (i) Determine the effect of the new equipment on the value of Smartprint Ltd. (3 marks)
- (ii) Comment on the effect of the results obtained in (d) (i) above on Smartprint Ltd.'s share price. (1 mark)

(Total: 20 marks)

QUESTION THREE

- (a) Summarise four factors that could justify the use of the residual income model in the valuation of equity. (4 marks)
- (b) The following information relates to Sky Blue Ltd.:

Debt	Sh.20,000,000
Long-term growth of revenues and after tax operating income	5% annually
Gross profit margin	40%
Depreciation	2% of sales
Other operating expenses	Sh.4,000,000
Working capital required	10% of additional revenues
Sales	Sh.100,000,000
Corporation tax rate	30%
Capital expenditure is expected to equal projected depreciation expense plus 5% of incremental revenues	

Required:

- (i) Explain whether a prospective investor should use reported earnings or normalised earnings in estimating the free cash flow to firm (FCFF) for Sky Blue Ltd. (2 marks)
- (ii) Calculate the forecast free cash flow to firm (FCFF) for Sky Blue Ltd. for the upcoming year. (5 marks)
- (c) An analyst gathered the following data for TZ Construction Ltd.:

Recent market price per share	Sh.30
Number of shares outstanding	40 million
	Sh."000"
Market value of debt	120
Cash and marketable securities	75
Investments	200
Net income	160
Interest expense	9
Depreciation and amortisation	12
Taxes	48

Required:

Calculate the enterprise value to earnings before interest, taxes and depreciation (EV/EBITDA) multiple. (4 marks)

(d) Wema Ltd. reported the following figures for the end of its financial year:

Revenues	Sh.40.8 million
Pretax income	Sh.8.6 million
Assets	Sh.53.2 million
Liabilities	Sh.27.8 million
Dividends per share	Sh.0.35
Number of shares outstanding	8 million
Corporation tax rate	30%

The beta for Wema Ltd. is 1.2, the current risk free rate is 4.5% and the expected return on the market is 12.5%.

Required:

The value of the shares using a single-stage residual income model.

(5 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Evaluate three momentum valuation indicators used in equity analysis. (6 marks)

(b) Explain three applications of industry analysis in equity valuation. (6 marks)

(c) Benson Mutisya has gathered the following data for a publicly quoted firm:

	Sh. "000"
Net income	43,923
Sales	423,474
Average total assets during the year	486,203
Shareholders equity, beginning of the year	397,925
Dividends paid	1,518

Required:

The firm's sustainable growth rate using the Dupont Model.

(3 marks)

(d) Big Store Limited (BSL) produces electronic toys for children aged between 2 and 12 years. The most recent income statement for BSL is given below:

	Sh. "million"
Revenue	1,500
Cost of goods sold	630
Selling expenses	120
Administrative expenses	330
Operating profit	420

Allan Oketch, a financial analyst, is forecasting BSL's operating profit for the next financial year. He believes a new tax rate of 10% is going to be imposed on the revenue. Allan also believes that cost of goods sold and selling expenses are a fixed percentage of sales, while administrative expenses are fixed. BSL is expected to pass on the entire cost of the tax to the consumer. The price elasticity of demand for BSL toys is 0.75, that is, volume will decrease by 7.5% when the effective price increases by 10%.

Required:

The forecasted operating margin for the next financial year.

(5 marks)

(Total: 20 marks)

QUESTION FIVE

(a) (i) Describe three disadvantages of using the price to book value ratio in equity valuation. (3 marks)

(ii) A firm has a return on equity (ROE) of 18%, an estimated growth rate of 13% and its shareholders require a return of 17% on their investments.

Required:

Based on these fundamentals, calculate the appropriate price to book value ratio for the firm.

(2 marks)

(b) The margin and sales tradeoff for QT Ltd. for next year are provided below:

Firm	Strategy	Retention Rate	Profit margin	Sales/book value of equity
QT	High margin/Low volume	20%	8%	1.25
QT	Low margin/High volume	20%	2%	4.00

The book value of equity of the firm is Sh.80 and has a required rate of return of 10%.

Required:

Calculate the firm's leading price to sales (P/S) multiple assuming that it undertakes a high margin/low volume strategy. (3 marks)

(c) Charles Magut is a financial analyst at Signature Investment Limited. He has compiled the following information about Reliant Properties Ltd.:

Growth rate of free cash flow to firm (FCFF) - 8.8% in Stage 1 comprised of years 1 – 4, 7.4% in year 5, 6% in year 6 and 4.6% in year 7, 3.2% in year 8 and thereafter

Capital structure	-	20% debt and 80% equity
Marginal tax rate	-	34%
Long-term debt	-	Sh.1.518 billion
Cost of debt	-	7.1%
Equity beta	-	0.90
Risk-free rate	-	5.04%
Equity risk premium	-	5.5%
Current FCFF	-	Sh.745 million
Outstanding shares	-	309.39 million

Required:

- (i) The required return for equity. (2 marks)
- (ii) Weighted average cost of capital (WACC). (2 marks)
- (iii) Total value of Reliant Properties Ltd. using Three-Stage FCFF. (6 marks)
- (iv) Value per share of the company. (2 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:

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

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	9.7731	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	4.9395	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	4.9399	4.1667	3.5714	3.1250