



**CERTIFIED PUBLIC ACCOUNTANT
ADVANCED LEVEL 2 EXAMINATIONS
A2.1: STRATEGIC CORPORATE FINANCE**

DATE: WEDNESDAY, 26 APRIL 2023

INSTRUCTIONS:

- 1. Time Allowed: 3 hours 45 minutes (15 minutes reading and 3 hours 30 Minutes writing).**
- 2. This examination has two sections: A & B.**
- 3. Section A has one Compulsory Question while section B has three optional questions to choose any two.**
- 4. In summary attempt Three questions.**
- 5. Marks allocated to each question are shown at the end of the question.**
- 6. Show all your workings where necessary.**
- 7. The question paper should not be taken out of the examination room.**

SECTION A

QUESTION ONE

Terimbere Company Ltd (TCL)

Terimbere Company Ltd (TCL) is a listed company in the construction industry which specializes in the construction of roads and bridges. TCL is considering a project that would involve an investment of FRW 100 million (net of issue costs) for the purchase of a new machine and would yield annual cash inflows of FRW 55 million for each of the next three years. At the end of this period, it will have no scrap value.

The machine will attract written down allowances of 25% per annum on a reducing balance basis, with a balancing allowance at the end of the project life when the machine is scrapped.

TCL has an equity beta of 1.29 and a debt-to-equity ratio of 1:3 though this ratio will change because of the new investment. Firms in the same industry have an average equity beta of 1.24 and an average of debt-to-equity ratio of 1:2.3.

The risk-free rate is 5%, the market return is 9% and debt is risk free. The corporation tax is payable in the same year at a rate of 30% of profit. The debt beta is assumed to be zero.

The new investment will be financed as follows:

Debt (redeemable in three years): 30% and Equity: 70%

Issue costs are 4% on the gross equity issued and 2% on the gross debt issued.

Nyagatare Limited (NL)

NL is a listed company involved in the manufacture of dairy products such as milk, cheese, dry powder products, yogurt, and butter over the past years, NL has been making huge profits and wants to open new branches in different geographical markets in the region. This plan has been going on for the last few years. Current plans are to continue expansion and open five more branches in two years.

The company's revenue comes from the sales of products it produces through its branches via internet and it's from registered agents. The demand for NL's products is growing and it has developed a card-based loyalty program based on rewards collected through an Electronic Payment System at branches. A number of customers are signing up for this new system.

The board of the company is concerned as profits are dwindling and the share price has dropped. In addition, the company is receiving increasingly negative reports about the performance of the company.

Nyagatare Limited Statement of Profit or Loss for the Year Ended 31 December.

Details	2019	2020
	FRW'000'	FRW'000'
Sales Revenue	5,633,295	7,374,620
Cost of sales	(586,755)	(680,670)
Gross Profit	5,046,540	6,693,950
Administration expenses	(1,117,740)	(1,545,650)
Other operating expenses	(1,190,000)	(1,465,000)
Total operating expenses	(2,307,740)	(3,010,650)
Net operating profit	2,738,800	3,683,300
Interest expense	(324,440)	(376,350)
Profit before tax	2,414,360	3,306,950
Taxation	(594,990)	(790,290)
Profit after tax	1,819,370	2,516,660
Dividends	694,155	922,005

Nyagatare Limited Statement of Financial Position as at 31 December

	2019	2020
	FRW'000'	FRW'000'
Non-current assets	3,104,000	3,420,000
Current assets		
Inventory	492,000	550,000
Accounts receivable	234,600	246,200
Cash and cash equivalents	12,750	8,000
Total current assets	739,350	804,200
Total assets	3,843,350	4,224,200
Equity and liabilities:		
Ordinary Shares (FRW 100)	2,000,000	2,000,000
Accumulated retained earnings	415,000	505,000
Total Equity	2,415,000	2,505,000
Long-term borrowings	781,000	950,000
Current liabilities		
Trade Payables	390,000	417,000
Accruals	257,350	352,200
Total current liabilities	647,350	769,200
Total Equity and liabilities	3,843,350	4,224,200

Additional information:

1. The share market price of NL in 2019 and 2020 were FRW 110 and FRW 125 respectively.
2. The modified version of Altman’s Z score model for corporate failure prediction for non-manufacturing companies is given by:

$$Z = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$$

where:

Z = The Altman’s Z-score

X₁ = Working capital/Total assets

X₂ = Accumulated retained earnings/Total assets

X₃ = Earnings before interest and tax/Total assets

X₄ = Market value of equity / Book value of total liabilities

Karangwa Investment Company (KIC)

KIC is planning to invest in one of two different short-term portfolios of four short – financial investments. The correlation between the returns of the individual investments is believed to be negligible. The market return is estimated to be 12%, and the risk-free rate 5%.

Portfolio one

Investment	Beta	Amount invested (FRW 000)	Expected return	Total risk
w	1.3	20,000	26%	8%
x	1.2	30,000	24%	10%
y	1.1	40,000	22%	9%
z	0.6	10,000	20%	7%

Portfolio two

Investment	Beta	Amount invested (FRW 000)	Expected return	Total risk
w	0.8	20,000	17%	6%
x	1.1	40,000	19%	8%
y	1.2	20,000	21%	11%
z	1.4	20,000	15%	12%

Mudenge Investment Company (MIC)

MIC is considering investing in a security whose returns depend on three risk factors which are: Gross Domestic product (GDP), inflation, and interest rate. The risk-free rate is 5%, the Capital Asset Pricing Model (CAPM) beta is 1.2 and the required rate of return on the market is 10%.

The required rate of return of the portfolio with unit sensitivity to GDP and no sensitivity to other factors is 14%, the required rate of return of the portfolio with unit sensitivity to inflation and no sensitivity to other factors is 12% and the required rate of return of the portfolio with unit sensitivity to interest rate no sensitivity to other factors is 9%. The security has a beta of 0.6, 0.3 and 0.8 with respect to the GDP, Inflation, and interest rate portfolios respectively.

Required:

- a) Calculate the adjusted present value (APV) for the project for TCL and conclude whether the project should be accepted or not. (15 Marks)**
- b) As a financial analyst, you have been requested by the managing director of NL to advise on the financial health of the company for the implementation of expansion strategies:
 - i. Assess the financial health of NL for the last two years based on Altman's Z score model and ratio analysis. Ratios should focus on current ratio, debt ratio, inventory turnover ratio, dividend yield, and net profit margin. (16 Marks)**
 - ii. Discuss any two financial performance indicators to be used to monitor the future performance of the NL. (4 Marks)****
- c) Estimate the return of the two portfolios for KIC using CAPM and decide which one should be selected. (13 Marks)**
- d) As a financial consultant, MIC management has consulted you for advice. On how they can compute the required rate of return of MIC's security using arbitrage pricing model (APT) (2 Marks)**

(Total: 50 Marks)

SECTION B

QUESTION TWO

Mwendo Motors Co Ltd (MMC Ltd) is a listed company which manufactures cars, motorcycles, and bikes. It has been making huge profit from this project in Rwanda and in the region over past five years. The demand for its products has significantly increased because they produce less carbon emissions than petrol using motorcycles.

MMC Ltd is planning to make a new investment of FRW 450 million to produce electric motorcycles. Through its research and development department, it has been found that MMC Ltd will be profitable due to its increased demand and its cost saving.

The board of directors in the recent meeting proposed to issue both ordinary and preference shares and use debt to finance the new proposed investment.

Mugenzi, one of the company's shareholders, is worried of this new investment because he thinks that the cost of financing this new investment would reduce the current share price which would reduce his wealth.

MMC Ltd Extract of the Statement of Financial Position of as at 31 December 2021

Assets:	FRW "000"
Non-current assets	730,000
Current assets	280,000
Total assets	1,010,000
Equity and liabilities:	
Share capital	350,000
Retained earnings	250,000
Total Equity	600,000
Long-term borrowings	100,000
Current liabilities	310,000
Total liabilities	410,000
Total Equity and liabilities	1,010,000

Additional Information

1. The share capital of MMC Ltd comprises of FRW 280 million and FRW 70 million of ordinary and irredeemable preference shares respectively.
2. MMC Ltd's ordinary shares have a nominal value of FRW 4.00 per share, an ex-dividend market value of FRW 3.50 per share. A dividend of FRW 0.42 per share for 2021 has just been paid.
3. The 5% preference shares of MMC Ltd have a nominal value of FRW 3.20 per share and an ex-dividend market value of FRW 2.80 per share.

The pattern of the recent dividends is as follows:

Year	Dividend per share
2018	0.36
2019	0.38
2020	0.40
2021	0.42

MMC Ltd has also a 15% redeemable debt of FRW 100 each for FRW 100 million. The corporate tax rate is 30%.

Required:

- As a financial analyst, estimate the after-tax weighted average cost of capital based on the market and book values should use as a discount rate when appraising new investment opportunities.** (13 Marks)
- Discuss difficulties and uncertainties in your estimates in (a).** (8 Marks)
- Musoni Investment Group (MIG) Ltd is a company specialized in investing in different firms. MIG Ltd is funded partly by equity and by debt. The yield on its five years debt is 5.8% and the yield on its ten years debt is 6.2%. MIG Ltd faces an upward sloping yield curve.

Required:

Explain the possible reasons for an upward sloping yield curve. (4 Marks)
(Total: 25 Marks)

QUESTION THREE

Gihozo Ltd (GL) is examining the purchase of Dukuze Ltd (DL), which would become a subsidiary of (GL) if the merger goes through. DL's market-determined beta is 2.0. The risk-free rate is 5% and the market rate is 10%. DL has 15 million shares of stock priced at FRW 72.5 The corporate tax is 30% for both companies. DL will retain FRW 15 million for internal expansion every year. The growth rate after the merger will be 10%.

Gihozo Ltd Projected post-merger cash flows as of 31st December

	2016	2017	2018	2019	2020
	FRW'000'	FRW'000'	FRW'000'	FRW'000'	FRW'000'
Net sales	110,000	131,000	156,000	179,000	196,000
Cost of goods sold	65,000	79,000	96,000	112,000	122,000
Selling and administration expenses	12,000	14,000	15,000	17,000	18,000
Depreciation	10,000	10,000	10,000	10,000	10,000
EBIT	23,000	28,000	35,000	40,000	46,000
Interest	8,000	9,000	10,000	11,000	11,000
EBT	15,000	19,000	25,000	29,000	35,000
Taxes (30%)	4500	5700	7500	8700	10500
Net income	10,500	13,300	17,500	20,300	24,500

Required:

- You are requested by the management of GL to assess whether GL will gain or lose from acquiring DL. (16 Marks)
- Briefly explain to the Director of Finance two benefits and one challenge of financial market integration (3 Marks)
- As a business consultant, you are requested by your client to discuss three forms of information efficiency. (6 Marks)

(Total: 25 Marks)

QUESTION FOUR

Shingiro Ltd (SL), a Rwandan firm has bought goods from a Hungarian supplier and must pay HUF (Hungarian franc) 4 million in three months' time. The company Finance Director wishes to hedge against the foreign exchange risk and is considering three methods:

1. Using the forward exchange contract
2. Using the money market hedge
3. Using a lead payment

Annual interest rate and foreign exchange rate are given below:

	FRW		HUF	
	Deposit Rate	Borrowing Rate	Deposit Rate	Borrowing Rate
1 month	7%	10.25%	10.75%	14.0%
3 months	7%	10.75%	4.0%	4.25%
Spot rate	FRW1: HUF 1.8625 – 1.8635			
1 month forward	0.60 – 0.58 premium			
3 months forward	1.80 – 1.75 premium			

SL is considering raising funds through its subsidiary in the foreign market by listing its shares on the stock market. The Director of Finance has requested you to explain to them about the operations of international capital markets before the next board meeting.

Required:

- a) As a finance specialist, SL relies on your expertise and has approached you to:
 - i. Advise the company on the best method to use. (7 Marks)
 - ii. State two advantages of forward contracts. (2 Marks)
- b) Discuss three types of exchange rate systems that may affect SL in purchasing goods abroad. (6 Marks)
- c) You have been requested by the management of SL to explain to them three foreign exchange risks exposures. (6 Marks)
- d) Prepare report to SL's Finance Director about the explanation of four benefits of investing in the capital market. (4 Marks)

(Total: 25 Marks)

End of question paper

Present value interest factor of FRW1 per period at i% for n periods, PVIF(i,n)

Period	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

Present value interest factor of FRW1 per period at i% for n periods, PVIF(i,n)

Period	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	0.074	0.065

Present value interest factor of an (ordinary) annuity of FRW1 per period at i% for n periods, PVIFA(i,n).

Period	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

Present value interest factor of an (ordinary) annuity of FRW1 per period at i% for n periods, PVIFA(i,n).

Period	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

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