THE INSTITUTE OF CHARTERED ACCOUNTANTS OF NIGERIA

PROFESSIONAL LEVEL EXAMINATION – PILOT QUESTION AND ANSWER

STRATEGIC FINANCIAL MANAGEMENT

Time Allowed 3 ¼ hours (including 15 minutes reading time)

INSTRUCTION: YOU ARE REQUIRED TO ATTEMPT FIVE OUT OF THE SEVEN QUESTIONS IN THIS PAPER

SECTION A: COMPULSORY QUESTION (30 MARKS)

Question 1

Ifedayo Plc is a food manufacturer with a portfolio of well-known brands. The founding directors retain a significant minority shareholding in the company and continue to serve on the board following a successful listing ten years ago. After obtaining the listing, the gearing ratio increased significantly above the sector average as a result of a poorly timed expansion strategy, mainly financed by debt. Earnings became increasingly volatile, and the debt burden triggered a decline in the company's financial performance. The board responded to these problems five years ago by pursuing a debt-reduction turnaround strategy, which has been financed by a series of rights issues and asset disposals.

Even though this strategy successfully reduced the gearing ratio, which is now equal to the industry average, the share price remains depressed due to competitive pressures within the industry. The company's credit rating has recently been downgraded once again. Ifedayo Plc's chief executive officer (CEO) has identified an opportunity to relocate the manufacturing plant and develop a state-of-the-art automated production line, which will reduce the underlying cost base and be a source of competitive advantage.

Project information

Ifedayo Plc's finance director has prepared estimates of the free cash flow generated by the project, based on a four-year time horizon:

Year	**0**	**1**	**2**	**3**	**4**
	₦m	**₦m**	**₦m**	**₦m**	**₦m**
Free cash flows		20.9	20.6	28.7	104.6

The investment cost is ₦120m, which Ifedayo Plc's CEO proposed to finance as follows:

	₦m
Disposal of existing manufacturing plant	20
Rights issue	10
Subsidised loan, 3.5% annual interest rate	40
Bank loan, 9% annual interest rate	50
Total	120

The bank loan is repayable in equal annual instalments over four years. Issue costs of 2% are payable on gross external financing and are not allowable for corporate tax. Issue costs are payable out of available cash reserves. The finance director has asked you to ignore underwriting costs relating to the rights issue.

Additional information

Ifedayo Plc's current equity beta is 1.418 and the debt: equity ratio is 1:5 based on market values. The risk-free rate is 3% and the market risk premium is 9%. The CEO expects the business risk of the company to remain unchanged as a result of the investment.

Corporate tax is payable at an annual rate of 20%.

The board discussed the financing of the project at a recent meeting. Ifedayo Plc's corporate bankers have already approved the funding decision for the ₦50m bank loan but the finance director is concerned about the following capital providers:

External shareholders

The last rights issue took place 18 months ago and there were two others in the previous five years. A group of shareholders have formed an action group to exert pressure on the board for more drastic change. This included a campaign to replace the CEO, which was only narrowly avoided when the shareholders voted at the most recent annual general meeting. The CEO is optimistic about the prospects of a rights issue but suggested underwriting the issue to reduce the risk of failure.

Founding directors

The production and marketing directors indicated they would not be able to take up their rights due to personal commitments but would otherwise provide full support for the new strategy.

Subsidised loan provider

The government funds the subsidised loan programme to boost job creation in the economically deprived northern region of the country, which is where the new automated manufacturing plant is to be located. Although the loan has yet to be approved, the chief executive is optimistic about the outcome of their application. One feature of the loan programme is that it is open to applicants without assets available to provide security, although other restrictions may be imposed. This is relevant to Ifedayo Plc since surplus assets were disposed of during the turnaround strategy and those which remain will be used to secure the new bank loan.

Required

a) Calculate the adjusted present value of the investment and recommend whether the project should be accepted or not. **(18 marks)**

b) Discuss the factors the capital providers, excluding the bank, will consider before deciding whether or not to approve the funding decision for Ifedayo Plc's investment in a new manufacturing plant. **(16 marks)**

c) Discuss generally the roles of non-executive directors (NEDs) in major capital investment decisions **(6 marks)**

(Total: 30 marks)

Question 2

ZT is a long-established listed company. Its main business is the retailing of new and used motor cars and the provision of after-sales services. It has sales outlets in most of the major towns and cities in the country. It also owns a substantial amount of land and property that it has acquired over the years, much of which it rents or leases on medium to long-term agreements. Approximately 80% of its net current asset value is land and buildings.

The company has grown organically for the last few years but is now considering expanding by acquisition.

KT owns a number of car showrooms in wealthy, semi-rural locations. All these showrooms operate the franchise of a well-known major manufacturer. KT is a long-established private company with the majority of shares owned by the founding family, many of whom still work for the company. The major shareholders are now considering selling the business if a suitable price can be agreed. The Managing Director of KT, who is a major shareholder, has approached ZT to see if they would be interested in buying KT. He has implied that holders of up to 50% of KT's shares might be willing to accept ZT shares as part of the deal.

The forecast earnings of ZT for the next financial year are ₦35 million. According to the Managing Director of KT, his company's earnings are expected to be ₦4 million for the next financial year.

Financial statistics and other information on ZT and KT are shown below:

	ZT	KT
Shares in issue (millions)	25	1.5
Earnings per share (kobo)	112.5	153
Dividend per share (kobo)	50.6	100
Share price (kobo)	1,237	N/A
Net asset value attributable to equity (₦m)	350	45
Debt ratio (outstanding debt as percentage of total market value of company)	20	0
Forecast growth rate percentage (constant, annualised)	4	5
Cost of equity	9%	N/A

KT does not calculate the cost of equity, but the industry average for similar companies is 10%

Required

Assume you are a financial manager working with ZT. Advise the ZT Board on the following issues in connection with a possible bid for KT:

a) Methods of valuation that might be appropriate and a range of valuations for KT within which ZT should be prepared to negotiate. **(10 marks)**

b) The financial factors relating to both companies that might affect the bid.

(10 marks)

(Total: 20 marks)

Question 3

Tolu Ltd (TL) is expecting to receive $24,000,000 on 1 February 2024, which will be invested until it is required for a large project on 1 June 2024. Due to uncertainty in the markets, the company is of the opinion that it is likely that

interest rates will fluctuate significantly over the coming months although it is difficult to predict whether they will increase or decrease.

TL's treasury team want to hedge the company against adverse movements in interest rates using one of the following derivative products:

a. Forward rate agreements (FRAs)

b. Interest rate futures

c. Options on interest rate futures

TL can invest funds at the relevant inter-bank rate less 20 basis points. The current inter-bank rate is 4.09%. However, TL is of the opinion that interest rates could increase or decrease by as much as 0.9% over the coming months.

The following information and quotes are provided from an appropriate exchange on $ futures and options. Margin requirements can be ignored.

Three-month $ futures, $2,000,000 contract size

Prices are quoted in basis points at 100 – annual % yield

December 2023: 94.80

March 2024: 94.76

June 2024: 94.69

Options on three-month $ futures, $2,000,000 contract size, option premiums are in annual %.

BK Bank has offered the following FRA rates to TL:

1-7: 4.37%

3-4: 4.78%

3-7: 4.82%

4-7: 4.87%

It can be assumed that settlement for the futures and options contracts is at the end of the month and that basis diminishes to zero at contract maturity at a constant rate, based on monthly time intervals. Assume that it is 1 November 2023 now and that there is no basis risk.

Required

a) Based on the three hedging choices TL is considering, recommend a hedging strategy for the $24,000,000 investment, if interest rates increase or

decrease by 0.9%. Support your answer with appropriate calculations and discussion. **(16 marks)**

b) A member of TL's treasury team has suggested that if option contracts are purchased to hedge against the interest rate movements, then the number of contracts purchased should be determined by a hedge ratio based on the delta value of the option.

Required

Discuss how the delta value of an option could be used in determining the number of contracts purchased. **(4 marks)**

(Total: 20 marks)

Question 4

Bolade Ltd is owned equally by four friends and the company started operations twenty-five years ago in Lagos. It is involved in production and distribution of a wide range of household consumer products. The company is well known all over the country for high quality products. In the last ten years it has achieved significant organic growth. The directors (the four friends) are well respected across the country.

The four directors are now considering retiring and selling the company via initial public offering (IPO). Agbari & Co, a reputable firm of chartered accountants based in Abuja, has been appointed by the company to provide advisory services for the IPO. Agbari's Financial Consult unit will assist in valuing the company, preparing the IPO prospectus and structuring the offering. In addition, Agbari's investment advisory team provides services to major institutional and retail investors, advising them on potential IPO opportunities, including Agbari.

Required:

a) Carry out critical review of all relevant ethical issues involved in the given scenario especially as relates to the position of Agbari. **(10 marks)**

b) Provide possible strategies that can be adopted to manage the ethical issues identified in (a) above. **(10 marks)**

(Total: 20 marks)

Question 5

Discuss the key financial factors, other than the NPV decision, that a company should consider before investing in a project located in a foreign country rather than the home country. **(15 marks)**

Question 6

Africo Holdings Plc is a diversified conglomerate in Nigeria, operating in fast-moving consumer goods (FMCG), (telecommunications, and banking. The company has been under pressure from investors to unlock value due to underperformance in certain divisions. The board has decided on a restructuring plan that involves both a split-off and a split-up for different business segments.

Scenario 1: The Split-Off of AfricoBank Plc

a. A fricoBank Plc, the banking subsidiary, has been performing well, but the goup believes it can operate better as an independent entity.

b. Africo Holdings offers its shareholders the option to exchange some of their Africo Holdings shares for shares in the newly independent AfricoBank Plc.

c. Africo Holdings continues to exist but with reduced ownership in banking.

Scenario 2: The Split-Up of Africo Holdings Plc

a. After the AfricoBank split-off, investors still argue that Africo Holdings is too diversified.

b. The company decides to fully break up into two separate entities:

   i. Africo FMCG Plc (which focuses on consumer goods)

   ii. Africo Telecoms Plc (which will handle telecommunications)

c. Africo Holdings Plc ceases to exist, and shareholders automatically receive shares in both new companies.

Required:

a) i) What is the primary reason Africo Holdings is using a split-off for AfricoBank rather than selling it outright?

   ii) How does the exchange process in the AfricoBank split off affect the parent company's shareholding structure?

iii) If an Africo Holdings shareholder does not participate in the share exchange, what happens to their investment?

iv) Compare the AfricoBank split-off with a carve-out—what is the key difference? **(7 marks)**

b) i) Explain why Africo Holdings' decision to break into Africo FMCG Plc and Africo Telecoms Plc qualifies as a split-up rather than a spin-off or divestment.

ii) What happens to an investor who owns 1,000 shares in Africo Holdings after the split-up?

iii) What are the potential benefits and risks of a split-up for shareholders?

iv) Could Africo Holdings have chosen a demerger instead? How would that be different? **(8 marks)**

(Total: 15 marks)

Question 7

Large Plc (LP) wishes to borrow ₦200 million for five years to finance the purchase of new non-current assets. The preference of the company's directors is that these funds are borrowed at a fixed rate of interest. The company's long-term debt is currently rated BBB, meaning LP would have to pay 6.5% p.a. for fixed rate borrowing. Alternatively, LP could borrow at a floating rate, i.e. the prime lending rate (PLR) + 2.25% at the present time.

The directors of LP have recently been informed by its bank that TK plc is also currently looking to borrow ₦200 million for five years at a floating rate of interest and its AA rating gives it access to floating rate borrowing at PLR + 1.50% p.a. TK would pay 5.50% p.a. for fixed rate borrowing at the present time.

Required:

a) Show how an interest rate swap could be used to the equal benefit of both companies assuming that the terms of the swap agreement are such that LP's swap payment to TK is to be 5.5% fixed p.a. **(10 marks)**

b) Identify, with a supporting explanation, which of the two companies would be disadvantaged if PLR were to fall consistently over the five-year term of the interest rate swap. **(2 marks)**

c) Identify two risks that the two companies face should they decide to enter into the interest rate swap agreement. **(3 marks)**

(Total: 15 marks)

Formulae

Modigliani and Miller Proposition 2 (with tax)

$$K_{EG} = K_{EU} + (K_{EU} - K_D)\frac{V_D}{V_{EG}}(1 - t)$$

Asset Beta

$$\beta_A = \left[\frac{V_E}{(V_E + V_D(1 - T))}\beta_E\right] + \left[\frac{V_D(1 - T)}{(V_E + V_D(1 - T))}\beta_D\right]$$

Equity Beta

$$\beta_E = \beta_A + (\beta_A - \beta_D)\left(\frac{V_D}{V_E}\right)(1 - t)$$

Growing Annuity

$$PV = \frac{A_1}{r - g}\left(1 - \left(\frac{1 + g}{1 + r}\right)^n\right)$$

Modified Internal Rate of Return

$$MIRR = \left[\frac{PV_R}{PV_I}\right]^{\frac{1}{n}}(1 + r_e) - 1$$

The Black-Scholes Option Pricing Model

$$C_0 = S_0N(d_1) - Ee^{-rt}N(d_2)$$

$$d_1 = \frac{In\left(\frac{S_0}{E}\right) + (r + 0.5\sigma^2)T}{\sigma\sqrt{T}}$$

$$d_2 = d_1 - \sigma\sqrt{T}$$

The Put Call Parity

$$C + Ee^{-rt} = S + P$$

Annuity Table

Present value of an annuity of 1 $\frac{1 - (1+r)^{-n}}{r}$

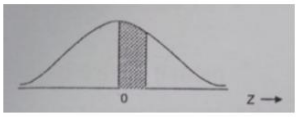
i.e.

Where r = discount rate

n = number of periods

Period (n)	Discount rate (r)										
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	
1	0·990	0·980	0·971	0·96	0·95	0·943	0·935	0·92	0·917	0·90	1
2	1·970	1·942	1·913	1·88	1·85	1·833	1·808	1·78	1·759	1·73	2
3	2·941	2·884	2·829	2·77	2·72	2·673	2·624	2·57	2·531	2.48	3
4	3·902	3·808	3.717	3·63	3.54	3.465	3·387	3·31	3·240	3·17	4
5	4·853	4·713	4·580	4·45	4·32	4·212	4·100	3·99	3.890	3·79	5
6	5·795	5·601	5·417	5·24	5·07	4·917	4·767	4·62	4.486	4·35	6
7	6·728	6.472	6·230	6·00	5·78	5·582	5·389	5·20	5·033	4·86	7
8	7·652	7·325	7·020	6·73	6·46	6·210	5·971	5·74	5·535	5·33	8
9	8·566	8·162	7·786	7.43	7·10	6·802	6·515	6·24	5·995	5·75	9
10	9·471	8·983	8·530	8·11	7·72	7·360	7·024	6·71	6.418	6·14	10
11	10·368	9·787	9·253	8·76	8·30	7·887	7.499	7·13	6·805	6.49	11
12	11·255	10·57	9·954	9·38	8·86	8·384	7·943	7·53	7'161	6·81	12
13	12·134	11·34	10·635	9·98	9·39	8·853	8·358	7·90	7·487	7·10	13
14	13·004	12·10	11·296	10·56	9·89	9·295	8·745	8·24	7·786	7·36	14
15	13·865	12·84	11·938	11·11	10·38	9·712	9·108	8·55	8·061	7·60	15
(n)	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	
1	0·901	0·893	0·885	0·87	0·87	0·862	0·855	0·84	0·840	0·83	1
2	1·713	1·690	1·668	1·64	1·62	1·605	1·585	1·56	1·547	1·52	2
3	2.444	2.402	2·361	2·32	2·28	2·246	2·210	2·17	2·140	2·10	3
4	3·102	3·037	2·974	2·91	2·85	2·798	2·743	2.69	2·639	2.58	4
5	3·696	3·605	3·517	3·43	3·35	3·274	3·199	3·12	3·058	2·99	5
6	4·231	4·111	3·998	3·88	3·78	3·685	3·589	3.49	3.410	3·32	6
7	4·712	4·564	4.423	4·28	4·16	4·039	3·922	3·81	3·706	3·60	7
8	5·146	4·968	4.799	4·63	4.48	4·344	4·207	4·07	3·954	3·83	8
9	5·537	5·328	5·132	4·94	4·77	4·607	4.451	4·30	4·163	4·03	9
10	5·889	5·650	5.426	5·21	5·01	4·833	4·659	4.49	4·339	4·19	10
11	6·207	5·938	5·687	5.45	5·23	5·029	4·836	4·65	4.486	4·32	11
12	6·492	6·194	5·918	5·66	5·42	5·197	4·988	4·79	4·611	4.43	12
13	6·750	6.424	6·122	5·84	5·58	5·342	5·118	4·91	4·715	4·53	13
14	6·982	6·628	6·302	6·00	5·72	5.468	5·229	5·00	4·802	4·61	14
15	7·191	6·811	6.462	6·14	5·84	5·575	5·324	5·09	4·876	4·67	15

Standard normal distribution table



	0·00	0·01	0·02	0·03	0·04	0·05	0·06	0·07	0·08	0·09
0·0	0·0000	0·0040	0·0080	0·0120	0·0160	0·0199	0·0239	0·0279	0·0319	0·0359
0·1	0·0398	0·0438	0·0478	0·0517	0·0557	0·0596	0·0636	0·0675	0·0714	0·0753
0·2	0·0793	0·0832	0·0871	0·0910	0·0948	0·0987	0·1026	0·1064	0·1103	0·1141
0·3	0·1179	0·1217	0·1255	0·1293	0·1331	0·1368	0·1406	0·1443	0·1480	0·1517
0.4	0.1554	0·1591	0·1628	0·1664	0·1700	0·1736	0·1772	0·1808	0·1844	0·1879
0·5	0·1915	0·1950	0·1985	0·2019	0·2054	0·2088	0·2123	0·2157	0·2190	0·2224
0·6	0·2257	0·2291	0·2324	0·2357	0·2389	0·2422	0·2454	0·2486	0·2517	0·2549
0·7	0·2580	0·2611	0·2642	0·2673	0·2704	0·2734	0·2764	0·2794	0·2823	0·2852
0·8	0·2881	0·2910	0·2939	0·2967	0·2995	0·3023	0·3051	0·3078	0·3106	0·3133
0·9	0·3159	0·3186	0·3212	0·3238	0·3264	0·3289	0·3315	0·3340	0·3365	0·3389
1·0	0·3413	0·3438	0·3461	0·3485	0·3508	0·3531	0·3554	0·3577	0·3599	0·3621
1·1	0·3643	0·3665	0·3686	0·3708	0·3729	0·3749	0·3770	0·3790	0·3810	0·3830
1·2	0·3849	0·3869	0·3888	0·3907	0·3925	0·3944	0·3962	0·3980	0·3997	0.4015
1·3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1·5	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
1·6	0.4452	0.4463	0.4474	0.4484	0·4495	0.4505	0.4515	0.4525	0.4535	0.4545
1·7	0.4554	0.4564	0.4573	0·4582	0·4591	0.4599	0·4608	0·4616	0.4625	0.4633
1·8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0·4706
1·9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2·0	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0·4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0·4850	0.4854	0.4857
2·2	0.4861	0.4864	0.4868	0·4871	0.4875	0.4878	0.4881	0·4884	0.4887	0.4890
2·3	0.4893	0·4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2·4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0·4931	0.4932	0.4934	0.4936
2·5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2·6	0.4953	0.4955	0·4956	0.4957	0.4959	0.4960	0.4961	0·4962	0.4963	0·4964
2·7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0·4974
2·8	0.4974	0.4975	0.4976	0.4977	0.4977	0·4978	0.4979	0.4979	0.4980	0.4981
2·9	0·4981	0.4982	0.4983	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0·4986
3·0	0·4987	0.4987	0·4987	0.4988	0.4988	0.4989	0.4989	0·4989	0.4990	0·4990

This table can be used to calculate N(d), the cumulative normal distribution functions needed for the of option pricing. If $d_i > 0$, add 0·5 to the relevant number above. If $d_i < 0$, subtract the relevant number above from 0·5.

SUGGESTED SOLUTIONS

Solution 1

a) **Project cash flows**: All figures are in ₦m

Year	**0**	**1**	**2**	**3**	**4**
Cash flows	(120.0)	20.9	20.6	28.7	104.6
Discount factor – 14% (W1)	1.000	0.877	0.769	0.675	0.592
Present values	(120.0)	18.3	15.8	19.4	61.9

Base case net present value = (₦4.6m)

Base case net present value is negative and, on this basis, should therefore be rejected.

Financing side effects: All figures are in ₦m

Issue costs (W2)	(2.0)
Tax shield on subsidised loan (W3)	0.9
Tax shield on bank loan (W4)	2.0
Subsidy benefit (W5)	5.7
Total benefit of financing side effect	6.6

Recommendation

The adjusted present value of the project is ₦2.0m (₦6.6m – ₦4.6m) and so the project should be accepted.

Working Notes

1. **Ungeared cost of equity**

   i. Convert the equity beta of Ifedayo to asset beta

   $$\beta_A = \left[\frac{V_E}{(V_E + V_D(1-T))}\beta_E\right] + \left[\frac{V_D(1-T)}{(V_E + V_D(1-T))}\beta_D\right] = \frac{1.418 \times 5}{5 + 1\,(1-0.2)} + 0 = 1.222$$

   (Debt is risk - free with beta of 0)

   Ii. Ungeared cost of equity

   $K_{EU} = R_f + \beta_A (R_m - R_f) = 3 + 1.222\ (9) = 14\%$

2. **Issue costs**

   ₦100m × 2% = ₦2m

(Note: Issue costs are payable out of cash reserves, so the finance does not need to be grossed up).

3. **Tax shield on subsidised loan**
Annuity factor (9%, 4 years) = 3.240
₦40m × 0.035 × 0.20 × 3.240 = ₦907,200
(Note: The risk free rate would also be acceptable as a discount rate)

4. **Tax shield on bank loan**
Annual repayment = ₦50m/3.240 = ₦15,432,098

Year	**1**	**2**	**3**	**4**
	₦000	**₦000**	**₦000**	**₦000**
Opening balance	50,000	39,068	27,152	14,164
Interest at 9%	4,500	3,516	2,444	1,275
Repayment	(15,432)	(15,432)	(15,432)	(15,432)
Closing balance	39,068	27,152	14,164	7
Tax relief on interest (20%)	900	703	489	255
Discount factor (9%)	0.917	0.842	0.772	0.708
Present value	825	592	378	181

Total present value = ₦1,976,000

5. Subsidy benefit, net of tax
Subsidy benefit = ₦40m × (0.09 – 0.035) × 0.80 × 3.240 = ₦5,702,400

b) **Factors each capital provider may consider**
External shareholders
The chief executive's optimism regarding the rights issue may be misplaced. Ifedayo Plc's shareholders may question the need for another rights issue so soon after the last one. Nor may they have the funds available to take up their rights, particularly when there has been a series of fund raising exercises in the last six years. Whilst in theory the shareholders are able to sell their rights, this would mean accepting a dilution in their voting power, which may not be acceptable. Therefore, it is possible a rights issue could fail. Even if Ifedayo Plc has the issue underwritten, failure of the rights issue would have an adverse impact on Ifedayo Plc's share price and the markets confidence in the board.

Shareholders may question the logic behind the new project and whether the forecast results can be delivered. They may need reassurance that lessons from the past have been learnt. The underwritten costs have been ignored in the financial appraisal even though these are likely to be significant and may

prove fatal to the outcome, particularly when the project's APV is quite marginal at ₦2m.

The loan will mean that Ifedayo Plc's gearing once again exceeds the average and shareholders will require higher returns to compensate for the increase in financial risk. The shareholders may question whether the commitment to service and repay the new loans may mean that Ifedayo Plc will have difficulty paying an acceptable level of dividend.

Founding directors

The directors may also lack the funds required to take up their rights but their participation is likely to be critical to the success of the rights issue. Any reluctance to participate could send a signal to external investors that the risks involved in the new project are too high, particularly when there are information asymmetries about the project.

Tensions between the board and shareholders have increased to the extent that the shareholder action group only narrowly lost a recent vote to replace the CEO. If the directors do not take up all their rights and the rights issue is still successful, the balance of power may alter in favour of the action group, if there was ever a renewed effort to remove the board.

Subsidised loan provider

The subsidised loan programme provides capital for investment with the objective of boosting employment in a deprived part of the country. Since the funds ultimately originate from the taxpayer, the government is accountable for any funding decisions made. Ifedayo Plc's ability to service and ultimately repay the debt is therefore paramount. Ifedayo Plc's credit rating provides an assessment of the probability of default and the recent downgrade may cause concern. Even though Ifedayo Plc is unable to provide assets for security, the directors may still be faced with other covenants, for example, restrictions on dividends or further borrowing which may upset shareholders.

The subsidy means demand for such loans is likely to be high and the selection criteria difficult, so it is unlikely that the outcome is a foregone conclusion in the way Ifedayo Plc CEO suggests. Based on the information provided, it is unclear whether the new project would meet those selection criteria. Ifedayo Plc's new project is to be located in an area targeted for regeneration; it remains the case that the objective of the move is to automate the production line. Whilst jobs may still be created in a deprived area, net job creation nationwide is still likely to be negative. Whether such a policy would be attractive to the government, or the taxpayer, remains to be seen.

(Note: Credit will be given for alternative and valid comments)

c) Non-executive directors (NEDs) play a crucial oversight and advisory role in major capital project decisions within a company. Unlike executive directors, NEDs are not involved in the day-to-day management of the business. Instead, they bring independent judgment and a broader perspective to board deliberations, particularly on strategic and high-stakes issues such as major capital projects. Their roles in these decisions typically include:

i) **Governance and oversight**
NEDs help ensure that capital projects align with the company's strategic objectives and are undertaken with appropriate governance. They assess whether proposals are justified based on sound business cases, and they challenge assumptions, methodologies, and risk assessments provided by management.

ii) **Risk management**
NEDs scrutinise the risks associated with major capital investments, including financial, operational, legal, environmental, and reputational risks. They ensure that risk management frameworks are robust and that contingency plans are in place.

iii) **Due diligence and scrutiny**
NEDs provide an independent viewpoint when reviewing capital expenditure proposals. They question the viability, cost estimates, funding strategies, timelines, and expected returns on investment. Their objective perspective helps prevent group thinking and ensures that decisions are well-founded.

iv) **Ethical and stakeholder considerations**
NEDs ensure that capital projects consider the interests of all stakeholders, including shareholders, employees, customers, and communities. They assess the broader impact of projects, including environmental, social, and governance (ESG) factors.

v) **Performance monitoring**
Once a capital project is approved and initiated, NEDs play a role in monitoring its performance. They review progress reports, ensure that milestones are being met, and that costs remain within budget. If issues arise, they help ensure that corrective actions are taken.

vi) **Board committee involvement**
Many NEDs sit on or chair key board committees such as the Audit Committee, Risk Committee, or Capital Projects Committee. These committees may have specific responsibilities related to evaluating and recommending approval of major capital expenditures.

vii) **Ensuring accountability**
NEDs help hold executive management accountable for the delivery of the project. They ensure that executives who propose and oversee

projects are responsible for their outcomes, especially in terms of return on investment and adherence to project goals.

Summary

In essence, non-executive directors act as independent guardians of shareholder interests in major capital project decisions. Their role is to ensure that such projects are strategically sound, well-governed, responsibly managed, and likely to deliver long-term value.

Solution 2

Tutorial notes

In (a), you are not told what methods to use, so you have to identify relevant information. You are given the net assets value, given all the information for the price-earnings, market capitalisation calculation, and given an indication of future growth that you can use in the dividend valuation model calculation.

Key factors in (b) are quality of forecasts, assets being purchased, effect on dividend policy and post-acquisition savings.

Part (c) is a straightforward discussion of factors affecting share prices.

a) **Methods of valuation and range of values for KT**

Net assets

The book value of KT's net assets attributable to equity shareholders is ₦45 million. This figure may need to be adjusted for increased or decreased market values of assets, particularly KT's property holding.

However, in any case, for a going concern, the book value of assets is a poor indicator of their economic value, which depends on their income-generating capacity, rather than their historical cost or realisable value. Here also KT has a franchise generating earnings that will not be reflected in the statement of financial position.

Price/earnings model

KT's existing earnings per share is ₦1.53, and the number of shares is 1.5 million, giving total equity earnings of ₦2.295 million. Taking the 5% growth figure given, next year's earnings would be ₦2.410 million.

However, the managing director is estimating ₦4 million for next year. This figure cannot be accepted at face value and would need to be substantiated.

In the absence of any better information, ZT's P/E ratio could be applied to these earnings figures. This is 1237/112.5 = 10.996, say 11.

The range of values for KT's valuation would be between ₦2.410 million × 11 and ₦4 million × 11 i.e. between ₦26.5 million and ₦44 million.

This valuation is dependent upon the P/E ratio. Arguably a lower ratio should be used as KT is unquoted, but it is difficult to say how much lower. Also, ZT's ratio may not be typical of the industry.

Dividend valuation model

Again, there is a range of values depending on whether the MD's forecast earnings are believed.

Last year's total dividends were 1.5m × 100 kobo = ₦1.5m. A 5% increase next year would give ₦1.575 million. The cost of equity for similar firms is 10% and the expected growth rate is 5%.

So, on this basis the expected company value = ₦1.575m/(0.1 – 0.05) = ₦31.5 million.

KT's dividend payout ratio (dividend/ earnings) is 100/153 = 0.654

Based on the MD's forecast earnings of ₦4 million, next year's dividend would be ₦4m × 0.654 = ₦2.616 million.

The forecast company value would be ₦2.616 million/(0.1 – 0.05) = ₦52.3 million.

The drawbacks of this method are:

i) The assumption that KT's cost of equity is the same as similar firms may be misleading.
ii) The assumption of constant dividend growth at that rate may be misleading. Dividend policy may change on takeover.
iii) Share prices are not normally just a function of dividend policy, future expected earnings are also a key factor.

Summary

Based on valuation of assets and income earning capacity, KT appears to have a value anywhere between ₦25 million and ₦52 million. The higher earnings-based figures are heavily dependent on the MD's forecast of next year's earnings that may well be overstated. Because the net asset value is

towards the top end of the valuation range, ZT could probably look at a value of between ₦40 million and ₦45 million, but will need to carry out further investigations on likely asset values.

b) **Financial factors that may affect the bid**

Financial factors relating to ZT

i) Like KT, the forecast of next year's earnings may be overstated. Current earnings = ₦1.125 × 25 million = ₦28.125 million. 4% growth (given) gives ₦29.25 million, but ZT's forecast for next year is ₦35 million.

ii) The total market value of the company's shares is below the net asset value. 25m shares × ₦12.37 = ₦309.25m that is below the ₦350m net asset value. This may indicate that the company possesses under-utilised assets, or alternatively that its assets are overstated in value. On the face of it, the company would be better broken up than operating as a going concern. All these factors will be of interest to any of KT's shareholders who would be considering receiving ZT shares. It will also interest market and ZT's low market value may mean that it becomes a takeover target itself.

iii) ZT has a fairly high gearing ratio. If ZT lacks cash and has to borrow more in order to buy out those 50% + shareholders of KT who do not wish to have ZT shares, this may have the effect of increasing the company's cost of capital.

iv) ZT has a lower dividend payout ratio than KT. This may discourage some of KT's shareholders from accepting ZT's shares.

v) Strategically it is unclear why ZT is buying KT, whilst ZT may be trying to diversify, KT may not be a big enough acquisition to make it worth diversifying. There may be better investment opportunities.

Relevant financial factors relating to KT

i) Next year's forecast earnings may be overstated. However, some of the directors may be taking higher salaries than realistic market levels, and the ongoing future profitability of the company may be higher if these people are replaced with lower cost managers.

ii) Like ZT, asset value is high. The net asset valuation is in fact higher than some of the other valuations, and KT's shareholders are unlikely to accept an offer below net asset value.

iii) The company is ungeared, which is advantageous, as it enables ZT to borrow to fund part of the acquisition.

iv) The 'quality' of KT's earnings is probably higher than ZT's, as it operates in up-market areas.

v) Selling KT to a listed company represents a good way for KT's shareholders to realise the value of their investment. However, many of the shareholders are likely to lose their jobs and may find it difficult to find equivalent positions. The bid may therefore, be opposed by a substantial number of shareholders.

vi) There are likely to be many areas where costs can be saved as a result of the acquisition of KT. This may make it worthwhile for ZT to pay a higher price for KT.

vii) ZT is likely to have good access to KT's business documentation as KT has contacted ZT. This should enable ZT to calculate a more accurate valuation.

Solution 3

a) **Using FRAs**

FRA rate 4.82% (3 - 7), since the investment will take place in three months' time for a period of 4 months.

If interest rates increase by 0.9% to 4.99%

Investment return = 4.79% × 4/12 × $24,000,000 =	$383,200
Payment to BK Bank = (4.99% - 4.82%) × $24,000,000 × 4/12 =	$(13,600)
Net receipt =	$369,600
Effective annual interest rate = 369,600/24,000,000 × 12/4 =	4.62%

If interest rates decrease by 0.9% to 3.19%

Investment return = 2.99% × 4/12 × $24,000,000 =	$239,200
Receipt from BK Bank = (4.82% - 3.19%) × 24,000,000 × 4/12 =	$130,400
Net receipt =	$369,600
Effective annual interest rate (as above)	4.62%

Using futures

Need to hedge against a fall in interest rates, therefore go long in the futures market (i.e. buy futures).

TL needs March contracts as the investment will be made on 1 February.

No. of contracts needed = $24,000,000/$2,000,000 × 4 months/ 3 months = 16 contracts.

Basis

Current price (on 1/11) – futures price = total basis

(100 – 4.09) – 94.76 = 1.15

Unexpired basis = 2/5 × 1.15 = 0.46

If interest rates increase by 0.9% to 4.99%

Investment return (from above) =	$383,200
Expected futures price = 100 – 4.99 – 0.46 =	94.55

Loss on the futures market = (0.9455 – 0.9476) × $2,000,000

× 3/12 × 16 =	$(16,800)
Net return =	$366,400
Effective annual interest 366,400/24,000,000 × 12/4 =	4.58%

If interest rates decrease by 0.9% to 3.19%

Investment return (from above) =	$239,200

Expected futures price = 100 – 3.19 – 0.46 = 96.35

Gain on the futures market = (0.9635 – 0.9476) × $2,000,000 × 3/12

× 16 =	$127,200
Net return =	$366,400
Effective annual interest rate (as above)	4.58%

Using options on futures

Need to hedge against fall in interest rates, therefore buy call options. As before, TL needs 16 March call option contracts ($24,000,000/$2,000,000) × 4 months/3months).

If interest rates increase by 0.9% to 4.99%

Exercise price	94.50	95.00
Futures price	94.55	94.55
Exercise?	Yes	No
Gain in basis points	5	0
Underlying investment return (from above)	$383,200	$383,200
Gain on options (0.0005 × 2,000,000 × 3/12 × 16)	$4,000	$0
Premium		
0.00432 × $2,000,000 × 3/12 × 16	$(34,560)	
0.00121 × $2,000,000 × 3/12 × 16		$(9,680)
Net return	$352,640	$373,520
Effective interest rate	4.41%	4.67%

If interest rates decrease by 0.9% to 3.19%

Exercise price	94.50	95.00
Futures price	96.35	96.35
Exercise?	Yes	Yes
Gain in basis points	185	135
Underlying investment return (from above)	$239,200	$239,200
Gain on options		
(0.0185 × 2,000,000 × 3/12 × 16)	$148,000	
(0.0135 × 2,000,000 × 3/12 × 16)		$108,000
Premium		
As above	$(34,560)	

As above		$(9,680)
Net return	$352,640	$337,520
Effective interest rate	4.41%	4.22%

Alternative presentation of calculation

Forward rate agreement

FRA rate 4.82% (3 - 7), since the investment will take place in three months' time for a period of 4 months.

Possible Scenarios	**Rates rise by 0.9%**	**Rates fall by 0.9%**
Ref. rate (now = 4.09%)	4.99%	3.19%
Actual return on investment (Ref. rate – 0.2%)	4.79%	2.99%
Impact of FRA (4.82% - Ref. rate)	(0.17%)	1.63%
Net income (%)	4.62%	4.62%
Net outcome ($) = $24,000,000 × 4/12 × 4.62%	369,600	369,600

Note: Ref. rate = reference rate, which in this question is the inter-bank rate.

Futures: March contracts to buy at 94.76 or 5.24% (100 – 94.76).

No of contracts needed =$24,000,000/$2,000,000 × 4 months/ 3 months = 16 contracts.

Basis

Current basis (on 1/11) = (100 – spot interest rate) – current futures price

= total basis

= (100 – 4.09) – 94.76 = 1.15

Unexpired basis = 2/5 × 1.15 = 0.46

- So, if interest rates increase by 0.9% to 4.99% the estimated futures price is 100 – (4.99 + 0.46) = 94.55% (or 5.45%).
- If interest rates decrease by 0.9% to 3.19% the estimated futures price is 100 – (3.19 + 0.46) = 96.35 (or 3.65%).

	Rates rise by 0.09%	**Rates fall by 0.09%**
Ref. rate (now = 4.09%)	4.99%	3.19%
Return on investment (Ref rate – 0.2%)	4.79%	2.99%
Impact on futures:		
Opening rate on 1/11 (to receive)	5.24%	5.24%
Closing rate on 1/2 (to pay)	(5.45%)	(3.65%)
Net outcome on futures	(0.21%)	1.59%
Overall net outcome (actual × futures)	4.58%	4.58%
Net outcome in $ (4.58% × ₦24m × 4/12)	$366,400	$366,400

Options on futures

March call options at 5% (95.00) or 5.5% (94.50) can be chosen. This solution illustrates the outcome if 5% is chosen, which is the rate closest to the current inter-bank rate. Again 16 contracts will be needed.

Possible scenarios	**Rates rise by 0.9%**	**Rates fall by 0.9%**
Ref. rate (now = 4.09)	4.99%	3.19%
Return on investment (Ref. rate - 0.2%)	4.79%	2.99%
Impact of futures		
Call option rate 1 Nov	5.0%	5.0%
Closing rate 1 Feb (to pay)	5.45%	3.65%
Net outcome on future	Do not exercise	1.35%
Premium	(0.121)%	(0.121)%
Outcome (actual + option – premium)	4.67%	4.22%
In $ (% $24,000,000 × 4/12)	373,600	337,600

Discussion

The FRA offer from BK Bank gives a slightly higher return compared to the futures market, however, TL faces a credit risk with over-the-counter products like the FRA, where BK Bank may default on any money owing to TL if interest rates fall. The March call option at the exercise price of 94.50 seems to fix the rate of return at 4.41%, which is lower than the return on the futures market and should therefore be rejected. The March call option at the exercise price of 95.00 gives a higher return compared to the FRA and the futures, if interest rates increase but do not perform as well if the interest rates fall. If TL takes the view that it is more important to be protected against a likely fall in interest rates, then that option should also be rejected. The choice between the FRA and the future depends on TL's attitude to risk and return, the FRA gives a small, higher return, but carries a credit risk. If the view is that the credit risk is small and it is unlikely that BK Bank will default on its obligation, then the FRA should be chosen as the hedge instrument.

b) The delta value measures the extent to which the value of a derivative instrument, such as an option, changes as the value of its underlying asset changes. For example, a delta of 0.8 would mean that a company would need to purchase 1.25 option contracts (1/0.8) to hedge against a rise in price of an underlying asset of that contract size, known as the hedge ratio. This is because the delta indicates that when the underlying asset increases in value by $1, the value of the equivalent option contract will increase by only $0.80.

The option delta is equal to $N(d_1)$ from the Black-Scholes option pricing formula. This means that the delta is constantly changing when the volatility or time expires change. Therefore, even when the delta and hedge ratio are used to determine the number of option contracts needed, this number needs to be updated periodically to reflect the new delta.

Solution 4

a) **Critical review of relevant ethical issues**

The scenario presents several ethical concerns, primarily centered around **conflicts of interest** and the responsibilities of Agbari & Co. as both advisors to Bolade Ltd. and potential advisors to investors considering the IPO. Below is a detailed review of the ethical issues:

i. **Conflict of interest**

Agbari & Co. has a dual role:

a) Acting as an advisor to Bolade Ltd. (to value the company, prepare the IPO prospectus, and structure the offering).
b) Acting as an advisor to institutional and retail investors, potentially including those interested in Bolade Ltd.'s IPO.

Ethical concern

a) **Bias in valuation:** Agbari may face pressure to inflate the valuation of Bolade Ltd. to make the IPO more attractive to investors, which might compromise the accuracy and fairness of their financial analysis.
b) **Investor advisories:** When advising investors, Agbari may not be entirely objective since they are also advising Bolade Ltd., creating a conflict between their duty to investors and their duty to the company.

ii. **Independence and objectivity**

As chartered accountants, Agbari's credibility relies on its ability to provide independent and unbiased advice. However, in this scenario:

a) Preparing the prospectus and structuring the IPO inherently positions Agbari closer to the directors of Bolade Ltd., potentially compromising their independence.
b) Their investment advisory team may struggle to maintain objectivity when evaluating the IPO for investors, given the potential for financial or reputational benefits from a successful IPO of Bolade Ltd.

Ethical Concern
The firm risks violating professional standards requiring independence and objectivity (e.g., **IFAC Code of Ethics for Professional Accountants**).

iii. Confidentiality of Information

Agbari & Co. will have access to sensitive information about Bolade Ltd., including its financials, business strategies, and future projections. This information could be misused if:

a) The investment advisory team uses it to provide preferential advice to certain investors.
b) Insider information leaks result in unfair trading advantages.

Ethical Concern
Agbari must safeguard confidential information to prevent misuse, particularly given their dual roles in advising both the company and investors.

iv. Transparency in IPO prospectus preparation

Agbari & Co. is responsible for preparing the IPO prospectus, which must provide potential investors with clear, accurate, and complete information.

i. There may be a temptation to omit or downplay risks and challenges faced by Bolade Ltd. to make the IPO more appealing.
ii. This could lead to a breach of ethical standards and regulatory requirements, such as those enforced by the **Securities and Exchange Commission (SEC) in Nigeria**.

Ethical Concern
Failing to provide transparent and balanced information could mislead investors, damaging Agbari's reputation and violating securities laws.

v. Professional skepticism and due diligence

Agbari must exercise professional skepticism when valuing Bolade Ltd. and verifying the accuracy of the information provided by the directors. Potential issues include:

a) Over-reliance on management-provided data without adequate verification.
b) Failure to challenge optimistic assumptions about future growth and profitability.

Ethical concern
Failure to exercise due diligence could result in an overvaluation of the company, leading to investor losses and potential legal liabilities for Agbari.

b) Strategies to manage the ethical issues

To address these ethical concerns, Agbari & Co. should adopt the following strategies:

i. Establish clear ethical boundaries

a) **Separate teams**
Agbari should create strict "Chinese walls" between its Financial Consult unit (advising Bolade Ltd.) and its investment advisory team (advising investors). This ensures no exchange of confidential or sensitive information between the two teams.

b) **Independent review**
An independent third party or an internal review committee should assess the valuation and IPO prospectus to ensure objectivity.

ii. **Strengthen independence**

a) **Disclosure of conflicts**
Agbari should disclose its dual roles to both Bolade Ltd. and potential investors, ensuring transparency about its involvement.

b) **Decline investment advisory role**
To maintain independence, Agbari could opt not to advise investors on Bolade Ltd.'s IPO to eliminate conflicts of interest entirely.

iii. **Ensure transparency in IPO prospectus**

a) **Full disclosure**
Agbari must ensure the IPO prospectus includes all relevant information, including risks, challenges, and uncertainties associated with Bolade Ltd.'s operations.

b) **Regulatory compliance**
The prospectus should comply with all SEC regulations and ethical standards for IPO disclosures.

iv. **Maintain confidentiality**

a) **Data protection policies**
Implement robust data protection measures to safeguard Bolade Ltd.'s sensitive information.

b) **Training**
Provide ethics training to employees to emphasise the importance of confidentiality and professional conduct.

v. **Exercise professional skepticism and due diligence**

a) **Independent verification**
Agbari should independently verify all financial data and assumptions provided by Bolade Ltd.'s directors.

b) **Valuation rigour**
Use well-established valuation models and stress-test assumptions to ensure the valuation is fair and reasonable.

vi. **Engage regulators and stakeholders**

a) **Consult with regulators**
Agbari should proactively engage with the SEC and other regulators to ensure compliance with all legal and ethical requirements.

b) **Stakeholder engagement**
Involve stakeholders, such as institutional investors, early in the process to address potential concerns transparently.

Conclusion

The ethical challenges in this scenario are primarily rooted in the conflict of interest arising from Agbari's dual advisory roles. By implementing robust strategies, such as separating advisory teams, maintaining transparency, safeguarding confidentiality, and ensuring independent reviews, Agbari can navigate these challenges effectively. Upholding high ethical standards will protect Agbari's reputation, ensure compliance with regulatory requirements, and foster trust among all parties involved.