The Institute of
Chartered Accountants
of Nigeria (ICAN)

Strategic financial management

Answers

Question 1

(a) **Cost of debt**

The cost of debt may be estimated from the redemption yield on the debenture as we are told that the cost of the secured loan is virtually the same as this.

Time		Cash flow	Try 5% Discount factor	PV	Try 7% Discount factor	PV
0	Market value	(1,310)	1.000	(1,310)	1.000	(1,310)
1 - 15	Interest less tax					
	13% × 1,000 × 70%	91	10.38	945	9.108	829
15	Redemption	1,000	0.481	481	0.362	362
	NPV			116		(119)

Interpolating:

$$\text{IRR} = A\% + \left(\frac{\text{NPV}_A}{\text{NPV}_A - \text{NPV}_B}\right) \times (B - A)\%$$

$$\text{IRR} = 5 + \left(\frac{116}{116 + 119}\right) \times (7 - 5)\% = 5.987\% \cong 6\%$$

(b) **Discount factors**

The two divisions have their own systematic risk so it is not acceptable to use Ejide's discount rate. Separate rates must be estimated for each division.

The market value of Ejide Plc's equity is ₦592 million (50,000,000/10 × ₦118.4).

You are told to assume that 55% of this relates to manufacturing and 45% to property sales.

The question also says to assume that term loan is serviced by the manufacturing division and the debenture by the property division. The market value of the debenture is ₦65.5 million (₦50m × ₦1,310/₦1,000).

Gearing by market values:	Equity (₦m)	%	Debt (₦m)	%
Ejide	592.0	82.5	125.5	17.5
Manufacturing division (55%)	325.6	84.4	60	15.6
Manufacturing sector		70.0		30.0
Property sales division (45%)	266.4	80.3	65.5	19.7
Property sales sector		80.0		20.0

Manufacturing division:

It is assumed that the systematic risk of the division may be estimated using the manufacturing beta.

As the gearing of the manufacturing division differs from that of the comparator industry it is necessary to ungear the industry beta, and to regear the resultant asset beta to take into account the capital structure of the manufacturing division.

Assuming corporate debt to be risk free

$$\beta_A = \left(\beta_E \times \frac{E}{E + D(1 - t)}\right)$$

$$\beta_A = \left(1.3 \times \frac{70}{70 + 30(1 - 0.3)}\right) = 1$$

Regearing equity beta

If:

$$\beta_A = \beta_E \times \frac{E}{E + D(1 - t)}$$

Then:

$$\beta_E = \beta_A \times \frac{E + D(1 - t)}{E}$$

$$\beta_E = 1 \times \frac{84.4 + 15.6(1 - 0.3)}{84.4} = 1.129$$

Cost of equity   = Rf + β(Rm − Rf)

= 5.5% + 1.129(14% − 5.5%) = 15.1% (say 15%)

The weighted average cost of capital is:

$$\text{WACC} = \left(K_E \times \frac{MV_E}{MV_{TOTAL}}\right) + \left(K_D \times \frac{MV_D}{MV_{TOTAL}}\right)$$

$$\text{WACC} = \left(15 \times \frac{325.6}{325.6 + 60}\right) + \left(6 \times \frac{60}{325.6 + 60}\right) = 13.6\%$$

However this is the money or nominal weighted average cost of capital. As real cash flows have been used the discount rate should also be real.

The Fisher equation shows the relationship between the money rate and real rate as follows:

$$1 + m = (1 + r)(1 + i)$$

This rearranges to:

$$1 + r = \frac{1 + m}{1 + i} = \frac{1.136}{1.03} = 1.103$$

The real discount rate for the manufacturing division is 10.3%. A discount rate of 10% will be used.

Property sales division:

As the gearing of the property sales division is almost identical to that of the property sales industry the industry beta may be used without ungearing and regearing.

ke = 5.5% + (14% − 5.5%) 0.9 = 13.15%

kd has been estimated at 5.82%

The weighted average cost of capital for the property sales division is:

$$\text{WACC} = \left(13.15 \times \frac{266.4}{266.4 + 65.5}\right) + \left(6 \times \frac{65.5}{266.4 + 65.5}\right) = 11.7\%$$

The real discount rate is found as follows:

$$1 + r = \frac{1 + m}{1 + i} = \frac{1.117}{1.03} = 1.084\%$$

A discount rate of 8% will be used.

(c)   Expected real cash flows: (₦million)

Manufacturing

Year	1	2	3	4	5	6 onwards
Net operating cash flow	45.0	48.0	50.0	52.0	57.0	60.0
Central costs	(6.0)	(6.0)	(6.0)	(6.0)	(6.0)	(6.0)
Tax allowable depreciation	(10.0)	(8.0)	(7.0)	(8.0)	(8.0)	(8.0)
	29.0	34.0	37.0	38.0	43.0	46.0
Taxation (30%)	(8.7)	(10.2)	(11.1)	(11.4)	(12.9)	(13.8)
Add back deprecation	10.0	8.0	7.0	8.0	8.0	8.0
One-off cost	(8.0)					
Overall cash flow	22.3	31.8	32.9	34.6	38.1	40.2
Discount factor (10%)						÷ 0.1
t5 Value of t6 to infinity flows						402
					402.0	↵
					439.7	
Discount factors (10%)	0.909	0.826	0.751	0.683	0.621	
Present values	20.3	26.3	24.7	23.6	273.3	

The expected NPV to infinity is ₦368.2 million

Property sales division

Year	1	2	3	4	5	6 onwards
Net operating cash flow	32.0	40.0	42.0	44.0	46.0	50.0
Central costs	(6.0)	(6.0)	(6.0)	(6.0)	(6.0)	(6.0)
Tax allowable depreciation	(5.0)	(5.0)	(5.0)	(5.0)	(5.0)	(5.0)
	21.0	29.0	31.0	33.0	35.0	39.0
Taxation (30%)	(6.3)	(8.7)	(9.3)	(9.9)	(10.5)	(11.7)
Add back depreciation	5.0	5.0	5.0	5.0	5.0	5.0
One-off cost	(8.0)					
Overall cash flow	11.75	25.3	26.7	28.1	29.5	32.3
Discount factor (8%)						÷ 0.08
t5 Value of t6 to infinity flows						403.8
					403.8	↵
					433.3	
Discount factors (8%)	0.926	0.857	0.794	0.735	0.681	
Present values	10.8	21.7	21.2	20.7	295.1	

The expected NPV to infinity is ₦369.5 million

The total of the two divisions to infinity is ₦368.2m + ₦369.5m = ₦737.7 million.

The current market value of Ejide is ₦592 million equity plus ₦125.5 million debt.

From these estimates it appears that, if the market is efficient, the value of the two divisions floated separately should marginally exceed the current value of Ejide. Given only a marginal potential benefit with the present value to infinity, and the fact that no replacement capital expenditure has been incorporated into the above cash flows, it does not appear to be financially advantageous for Ejide plc to separately float the two divisions.

(d) **Additional information and analysis might include:**

(i) Information on the accuracy of the projected cash flows.

(ii) Estimates of future price changes in individual elements of the cash flows. Different costs and revenues might be subject to different levels of price change. This would allow an estimate of expected NPV using nominal rather than real cash flows.

(iii) Better estimates of the risk of the two divisions. The industry comparisons might not accurately reflect divisional risk.

(iv) More accurate estimates of the gearing of the two divisions.

(v) Sensitivity analysis, best/worst NPV estimates, or estimates using Monte Carlo or other simulation techniques in order to see possible outcomes using different assumptions of cash flows and discount rates.

(vi) Valuation using alternative techniques. It is often argued that valuation should be based upon corporate free cash flow rather than total cash flow, or upon other measures such as EVA (economic value added).

(vii) NPV analysis does not take account of future options that might arise. It would be useful to know what different options might exist as a result of the separate floats.

      (viii) A demerger might result in adverse effects, such as greater difficulty raising capital for the smaller companies, or greater vulnerability to takeover bids. Such effects might not have been taken into account.

      (ix) The views of existing shareholders would be important, especially major institutional shareholders.

(e)   It is generally assumed that the major objective of decision makers in a company is to maximise the net present value of future cash flows when discounted at a rate which reflects shareholders' required rates of return.

The rationale for this assumption is that of all the stakeholders in a company the demands of the equity investors are paramount. Equity investors are dominant because they own the assets of the company and employ directors and managers (the decision makers) to make the best use of those assets. Ultimately, if the directors do not produce an, at least, adequate return for shareholders they will be out of a job.

It is accepted, that often alternative goals govern decision making within a company. In some cultures and political environments, the assumed dominance of shareholder interests is questioned. Why shouldn't the providers of labour, rather than capital, have their rewards maximised.

It is important to remember that it is senior management that actually make the decisions within companies and they will be looking for personal reward. They are likely to be interested in the level of their own salaries and pensions and security. It is often claimed that management seek maximum revenue rather than maximum profit, or, knowing that they may only work for a company for a limited time period, are more interested in short-term performance rather than the long-term growth of shareholders' wealth.

Finally there are other stakeholders in the company to be considered. Most companies will try to 'balance' the maximising of shareholder wealth with the motivation of workers and management, the delighting of customers
and a good public image. In achieving this balance shareholder wealth will not always be the major objective.

Question 2

(a) **Adjusted present value**

	₦m
Base case PV	(12.00)
PV tax shield (W5)	14.265
PV issue costs: W6)	(1.125)
Adjusted present value	1.14

Conclusion: Accept the project

Workings

(W1) Base case NPV (Rm)

Year	0	1	2	3	4
Capital equipment	(15)				
Working capital	(5)				5
Revenues		18	18	18	18
Costs		(5)	(5)	(5)	(5)
Taxation (W2)		(4.625)	(4.625)	(4.625)	(4.625)
Net cash flow (rand)	(20)	8.375	8.375	8.375	13.375
Exchange rate (W3)	15	13.64	12.40	11.27	10.25
Net cash flow (naira)	-300	114	104	94	137
Discount factor (20%) (W4)	1	0.833	0.694	0.579	0.482
Present values	-300	95	72	55	66

Base case NPV = (₦12)

(W2) Project tax charge (Rm)

Years 1 to 4	R
Revenue	18.00
Operating costs	(5.00)
Depreciation	(3.75)
Taxable profit	9.25
Tax charge (50%)	4.625

(W3) Naira/CFA franc rate

The current spot rate is ₦15 = R1 CFA.

The forecast 10% pa strengthening of the naira against the rand means that each year, one naira will be worth 10% more rand than the previous year.

Therefore the rate will change to: ₦15 = 1.1 × R1

This rearranges to: ₦15/1.1 = R1 or ₦13.63 = R1.

In other words, each year's exchange rate is found by dividing the previous year's rate by 1.1.

(W4) Base-case discount rate (₦-terms)

$$B_{asset} = 1.40 \times \frac{4}{4+1(1-0.35)} = 1.20$$

Base-case discount rate = 9% + (9.17% × 1.20) = 20%

(W5) **PV of financing side-effects**

PV of tax shield

Annual interest	= ₦150m × 0.10 =	₦15m
Tax rate		30%
Annual tax relief		₦4.5m
4 period 10% annuity factor		3.17
		₦14.265m

(W6) **PV of issue costs**

₦150m × 0.025 × (1 - 0.3) = ₦1,125,000

(b) By having a long-lived South African rand asset the company is exposing itself to both foreign exchange translation and transaction risk. This risk can be reduced by matching the rand assets as closely as possible to a rand liability.

The standard advice (given on the assumption that the company will have to finance some part of its overseas project by exporting naira) is that the project's non-property fixed assets should be financed with naira, while the property fixed assets, together with the working capital, should be financed in the currency of the host country. The reasoning behind this advice is that the company can hedge part of its foreign exchange risk through matching assets and liabilities in the same currency, while at the same time it gets some protection from foreign exchange risk on its unmatched assets through the workings of the *Law of One Price*. The reason why the non-property fixed assets are left unmatched is that they are the most likely assets to react to the *Law of One Price*. Therefore if the rand depreciated against naira (as it is expected to do) it might be reasonable to assume that the rand worth of the non-property fixed assets may rise in order to counteract the reduced worth of the rand, assuming that those assets are capable of being traded internationally.

(c) Capital investment decisions are often based upon the present value of expected future cash flows, discounted at a rate that reflects the risk of the project. However this ignores any actions that can be taken after the project has commenced to alter the cash flows, or any future opportunities that might arise as a direct result of having undertaken the project. Opportunities to respond to changing future circumstances are known as options. When such options relate to capital investments they are commonly known as real options. The existence of real options can significantly add to the value of an investment. If investments are judged only on their expected NPV, and the value embedded in the options is ignored, then an incorrect investment decision might result. Unfortunately the valuation of real options is extremely difficult.

In the context of the fertilizer factory investment a number of options might exist including:

(i)   The option to abandon the project.

(ii)   The option to delay the project.

(iii)   The option to expand production.

(iv)   The option to take advantage of new technology.

Question 3

(a) (i) Since the directors believe that the combined company will have the same P/E ratio as Ambrose plc's present one, they must be valuing Essien plc on the basis that its P/E ratio is also equal to Ambrose plc's.

The market value of Ambrose plc's equity is ₦440,000,000 (1,000,000 shares at ₦440) and its earnings are given as ₦40,000,000.

Therefore, the PE ratio is 11.

Applying this to Essien Plc's estimated 20X3 earnings of ₦14 million, gives a total price of 11 × 14m = ₦154 million. The estimate excludes the proceeds from the sale of the assets, which will occur at the end of the first year. The sale will yield ₦25 million. The net present value of this amount depends on the relevant cost of capital. Assuming that this remains at 14%, the NPV of the sale proceeds equals ₦22 (₦25/1.14).

The final price will therefore be approximately ₦154m + ₦22m = ₦176 million. Essien Plc has 1,000,000 shares in issue so this approach results in a valuation of ₦176 per share. This values the shares at a significant premium on the current market price of ₦126).

The main weakness of this approach is the use of the P/E ratio derived from the price of Ambrose plc's traded shares. This cannot be said to represent the worth of a business purchased as a whole.

(ii) The implication of the financial advisors' views is that the dividend valuation model should be used:

$$MV_{Ex\ div} = \frac{D_1}{K_E - g}$$

$$MV_{Ex\ div} = \frac{₦14 \times 50\%}{0.12(\text{given}) - 0.05(\text{W1})} = ₦100\ million$$

Again the NPV of the sale proceeds of the redundant assets should be added to the price, giving a final figure of ₦122 million, or ₦122 per share (slightly lower than the current market price of ₦126).

The main weakness here is the extrapolation of past growth into the future. There is no guarantee that Essien will continue to grow at 5%. The assumption that cost of capital will remain at 12% is also a weak one.

(b) The lower of the two prices calculated above was ₦122 million. However, this is too low for an initial bid as it is below the market price. The directors should therefore set an initial price slightly above this target. Normally initial bids are made at about 10% more than the market price, which would give a price of about ₦139 per share.

The maximum price which the Ambrose directors should be prepared to pay is slightly lower than the ₦176 million calculated above. At ₦176 million, the acquisition would result in a no gain, no loss deal.

(c) Due diligence

Due diligence is a process which attempts to reduce the risk associated with a transaction. It is an investigation of a business or person prior to signing a contract. One example of due diligence is the examination of a potential acquisition target by a buyer.

Due diligence attempts to achieve the following.

❑ Confirm the accuracy of information and assumptions on which a bid is based

❑ Provide the an independent assessment and review of the target business

❑ Identify and quantify areas of commercial and financial risk

❑ Provide assurance to providers of finance

There are many different aspects of a transaction that might be subject to due diligence.

Financial due diligence

Financial due diligence is a review of the target company's financial position, financial risk and projections.

Financial due diligence will examine:

❑ Financial statements

❑ Management accounts

❑ Projections

It will be particularly concerned with the assumptions upon which any projections are based.

Legal due diligence

This focusses on any legal matters which might be relevant to the value of the company or its continued success in the future. For example:

❑ Hidden warranties

❑ Security given on assets

❑ Legal disputes

❑ Break clauses in supply contracts that might result in loss of customers

Question 4

(a) Investment 1

	₦'000	₦'000	₦'000	₦'000	₦'000	₦'000	₦'000
Time	*0*	*1*	*2*	*3*	*4*	*5*	*6*
Sales (real terms) ₦'000		370	500	510	515	475	
Costs (real terms) ₦'000		300	325	335	330	325	
Net (real terms) ₦'000		70	175	175	185	150	
Inflation factor		*1.05*	*1.103*	*1.158*	*1.216*	*1.276*	
Operational net cash flow (nominal)		74	193	203	225	191	
Tax @30%			(22)	(58)	(61)	(68)	(57)
Non-current assets	(500)						
Tax relief on WDA		38	28	21	16	12	35
Working capital	(50)					50	
Net cash flow	(550)	112	199	166	180	186	(22)
Discount factor @ 12%	*1.000*	*0.893*	*0.797*	*0.712*	*0.636*	*0.567*	*0.507*
Discounted cash flow	(550)	100	158	118	115	105	(11)

NPV = ₦35,000 (6.4% on initial investment)

Investment 2

	₦'000	₦'000	₦'000	₦'000	₦'000	₦'000	₦'000
Time	*0*	*1*	*2*	*3*	*4*	*5*	*6*
Sales (real terms) ₦'000		420	510	575	550	510	
Costs (real terms) ₦'000		310	385	420	400	350	
Net (real terms) ₦'000		110	125	155	150	160	
Inflation factor		*1.05*	*1.103*	*1.158*	*1.216*	*1.276*	
Opl net cash flow (nominal)		116	138	179	182	204	
Tax @30%			(35)	(41)	(54)	(55)	(61)
Fixed assets	(450)						
Tax relief on WDA (W)		34	25	19	14	11	32
Working capital	(50)					50	
Net cash flow	(500)	150	128	157	142	210	(29)
Discount factor @ 12%	*1.000*	*0.893*	*0.797*	*0.712*	*0.636*	*0.567*	*0.507*
Discounted cash flow	(500)	134	102	111	91	119	(15)

NPV = £43,000 (8.6% on initial investment)

(b)

MEMORANDUM

To: Board of Directors, Nwofor Limited

From: Financial Manager

Date: 25 May 20X9

Subject: Report on recommended investment

We currently have two investment opportunities, of which we only have the capability to undertake one, and I have therefore carried out discounted cash flow evaluations upon which to base your decision between them.

As the computations in the attached appendix show, Investment 2 has a higher absolute NPV (by approximately ₦8,000), and a higher return on initial investment (8.6% versus 6.4%). It also leaves ₦50,000 to be invested elsewhere (at 6-7%) or returned to the shareholders by way of an increased dividend. Whilst the cost of capital of 12% would indicate the latter to be preferable, regard must be had to further investment opportunities arising in the near future.

I have used the net present value (NPV) technique for evaluation as being the theoretically most sound.

Alternative methods of evaluation that may be used include:

❑   internal rate of return - also a discounted cash flow technique, but in relative rather than absolute returns. This should not be used to choose between mutually exclusive projects, as it simply indicates the highest cost of capital each investment can bear before having a negative NPV. We should be interested in the absolute benefit we are going to get at our actual cost of capital.

❑   payback period - the length of time the investment takes to recover the original cash outlay from the cash inflows it generates. This can be a useful risk measure, but as it ignores any cash flows after the payback it cannot be used as a measure of ultimate worth.

Other, non-financial, factors that may be taken into consideration include:

❑   the nature of the two investments - if one is, for example, a diversification into other areas of business, this may be more risky, although it may also open up opportunities for further investment.

❑   how each investment fits with the company's overall strategic plan

❑   how each investment fits with the company's subsidiary objectives e.g., employee welfare, environmental factors, technological advancement etc.

Question 5

(a) (i) **Dividend valuation model**

If we assume a constant growth in dividends, we may estimate the cost of equity by using:

$$K_e = \frac{D_1}{MV_{\text{Ex div}}} + g = \frac{₦21,400,000 \times 1.11}{₦321,000,000} + 0.11 = 0.184 \ or \ 18.4\%$$

Cost of debt (K_d), as corporate debt is assumed to be risk free, is 12%, the Treasury bill yield.

The after-tax cost is 12(1 - 0.30) = 8.4%

The weighted average cost of capital (WACC) is found as follows:

$$WACC = \left(K_E \times \frac{MV_E}{MV_{\text{TOTAL}}}\right) + \left(K_D \times \frac{MV_D}{MV_{\text{TOTAL}}}\right)$$

$$WACC = \left(18.4\% \times \frac{2}{3}\right) + \left(8.4\% \times \frac{1}{3}\right) = 15.01\%$$

(ii) **Capital asset pricing model**

Cost of equity may be estimated using:

$$R_E = R_{RF} + \beta(R_M - R_{RF})$$

The beta value of the security may be found using:

$$\beta = \frac{\sigma_S}{\sigma_M} = \frac{14\%}{10\%} = 1.4$$

R_E = 12% + 1.4(16% - 12%) = 17.6%

K_d = 7.8% as in part (i)

$$WACC = \left(17.6\% \times \frac{2}{3}\right) + \left(8.4\% \times \frac{1}{3}\right) = 14.53\%$$

If the stock market is in equilibrium, and the inputs into the models are correctly specified (e.g., the dividend valuation model reflects only systematic risk), then the cost of equity K_e from the dividend valuation model should approximately equal the expected return on equity E(re) of the CAPM.

(b) **Report on the discount rate to be used in the appraisal of a major diversification into a new industry**

A pragmatic, although not completely accurate, way of identifying the systematic risk of operating cash flows is to use the published equity beta coefficients of other companies within the industry. These equity betas are considered to reflect the systematic risk of our company's major investment in the industry. However, if the average gearing level of the companies in the industry differs from our company's gearing, the beta coefficient will need to be adjusted to reflect the gearing level (financial risk) of our company.

The β equity of the industry is 1.50.

Using:

$$\beta_A = \left(\beta_E \times \frac{E}{E + D(1-t)}\right) + \left(\beta_D \times \frac{D}{E + D(1-t)}\right)$$

β debt is 0 therefore:

$$\beta_A = \beta_E \times \frac{E}{E + D(1 - t)}$$

$$\beta_A = 1.5 \times \frac{3}{3 + 1(1 - 0.3)} = 1.216$$

The beta value of 1.216 reflects the business risk of an all equity financed project in the new industry. This is to be financed in the same way as the company's existing projects. The cost of equity of a project in this industry financed in this way can be found using the CAPM equation in the usual way. In order to use this the beta value must be adjusted to include the gearing risk of the project as undertaken by the company.

If:

$$\beta_A = \beta_E \times \frac{E}{E + D(1 - t)}$$

Then:

$$\beta_E = \beta_A \times \frac{E + D(1 - t)}{E}$$

$$\beta_E = 1.216 \times \frac{2 + 1(1 - 0.3)}{2} = 1.64$$

Project K_E = 12 + 1.64(16 - 12) = 18.6%

Therefore the project WACC is:

$$\text{WACC} = \left(18.6\% \times \frac{2}{3}\right) + \left(8.4\% \times \frac{1}{3}\right) = 15.2\%$$

15.2% or approximately 15% is the suggested discount rate for the project.

This discount rate must only be regarded as a rough approximation.

Question 6

(a) A 'derivative' is a financial instrument that derives its value from the price or rate of some underlying item. Underlying items include equities, bonds, commodities, interest rates, exchange rates and stock market and other indices. Financial derivatives therefore include futures contracts, options, forward contracts, interest rate and currency swaps, interest rate caps, collars and floors, forward interest rate agreements, commitments to purchase shares or bonds, note issuance facilities and letters of credit.

The main ways in which a company such as Iwobi plc can use derivatives are as follows:

- Hedging
- Speculating

Hedging uses derivatives to reduce risk exposure. For example, if a Nigerian company was due to receive $100,000 in 2 months' time, it could take out a derivatives contract to sell $100,000 forward. This eliminates the Nigerian company's exchange risk, but at the cost of the contract and the downside of no longer being able to benefit from favourable exchange rate movements.

Speculating uses derivatives to create profits from unhedged positions. For example, if an investor believed that naira will weaken against the dollar, he could buy dollars forward. At the maturity date he sell the dollars into naira at the then spot rate and make a profit, since the dollars are worth more naira than was expected by the market. This type of speculation increases the company's risk exposure. If the investor buys dollars forward and is wrong about naira weakening, he faces the possibility of large losses.

Iwobi plc has diversified international interests, so the hedging of certain risks may well be practicable and appropriate. Whether Iwobi Plc would try to earn potential profits by speculating on derivatives depends on the board's attitude to risk.

What is important is that derivatives are a means of managing risk exposures. A company can either reduce or increase its risk as it wishes by taking out appropriate derivative contracts. They are therefore a valuable tool in the treasurer's arsenal of financial instruments.

(b) A swap is an agreement between two parties to exchange the cash flows related to specific underlying obligations. In an interest rate swap, the cash flows are the interest payments arising on principal amounts. For example, company A might have outstanding borrowings of ₦10m with annual interest fixed at 10%, while company B has borrowings of ₦10m with annual interest paid at a floating rate of NIBOR + 1%.

If company A and company B agree on an interest rate swap, they agree to take on the other's interest obligations, so that company B will pay fixed annual interest of ₦100,000 pa, while company A will now pay floating interest of NIBOR + 1% on ₦1m. Such a swap might be entered into if company A thought that interest rates were going to fall, while company B thought they would rise.

A forward rate agreement (FRA) is a contract in which two parties agree on the interest rate to be paid for a period of time starting in the future, for example for a three month period starting in six months' time. The contract is settled in cash; exposure is limited to the difference in interest rates between the FRA agreed rate and the actual rate, based on the notional agreed principal.

An interest rate futures contract is a standardised form of FRA traded on an investment exchange such as LIFFE. Each contract is for a specified nominal amount of a specified financial instrument on a specified date.

The advantages of swaps compared to other forms of interest rate risk management are as follows:

- swaps allow a company to restructure its capital profile without the expense of actually redeeming existing borrowings. Fixed borrowings can be changed to floating rate, or floating to fixed, without incurring the transaction costs and possible redemption penalties associated with actual redemption.
- using the principle of comparative advantage, companies with different credit ratings can reduce their cost of borrowing, by borrowing at different costs in different markets.
- swaps can offer access to capital markets for companies which would not normally be allowed to participate due to their low credit rating, by swapping borrowings with a company with a higher credit rating.

(c) Iwobi plc could borrow at a fixed 8%, while Kanu Ltd borrows at a floating NIBOR + 0.5%, and then swap the interest obligations. Total interest paid by both parties is NIBOR + 8.5%. This is cheaper than the alternative of Iwobi Plc borrowing at a floating NIBOR + 0.2%, while Kanu Ltd borrows at a fixed 8.5%. Total interest then paid by both parties is NIBOR + 8.7%.

Clearly the swap is advantageous, since total interest is 0.2% less than the alternative. If the benefit is share equally the companies would face the following expenses once the swap was set up.

	Iwobi plc	Kanu Ltd
Net expense with swap	NIBOR + 0.1%	8.4%
Best they could do without swap	NIBOR + 0.2%	8.3%

The swap could be set up as follows constructing a swap to reconcile the rates at which each borrows and the final rate the expect after the benefit:

	Iwobi plc	Kanu Ltd
Borrow at 8% fixed	(8%)	
Borrow at NIBOR + 0.5%		NIBOR + 0.5%
Swap:		
Iwobi plc pays Kanu Ltd	8%	(8%)
Kanu Ltd pays Iwobi	NIBOR + 0.1%	(NIBOR + 0.1%)
Net payment	NIBOR + 0.1%	8.4%

Concluding remarks

Iwobi plc's credit rating is better tha Kanu Ltd's so it would be more likely that Iwobi would receive more than 50% of the benefit though that would be a matter for negotiation.

If Iwobi plc is confident that interest rates are going to fall over the next three years, it might be better to take out floating rate borrowings from the start, rather than take out fixed rate borrowings and swap these for floating rate. Iwobi plc would not have to share the benefits of falling interest rates with any third party or pay the swap's commission payment to the bank (ignored in this case). The decision depends on how confident Iwobi plc is that interest rates will fall as expected.