SOLUTION 1

a)   A demerger results in the splitting up of a firm into smaller, legally separate firms. The financial benefits and disadvantages are largely dependent upon the individual situation. Among them are:

Advantages:
1.   It is a corporate restructuring strategy that can help a company to raise equity.

2.   It helps management to focus on the core operations of the company.

3.   Shareholders would get better information about the business unit because it issues separate financial statements.

4.   It helps to reduce internal competition for corporate funds.

Disadvantages:
1.   There is difficulty in accessing credit as the de-merged firm may be smaller.

2.   The synergy of being a larger firm may be lost.

Reasons for De-merger
1.   Where a company has grown too large for its management structure.

2.   Selling an unprofitable part or unit to ensure survival of the whole business.

3.   Where one part of the company has either a higher or lower level of risk than the other parts.

b) i.   Political risk is defined as the probability of a multinational company being significantly affected by political events in a host country or a change in the political relationship between a host country and one or more other countries.

Policies to manage Political Risk

1.   Insurance against political risk

2.   Negotiation of Agreement

Here, political risk can be addressed by the negotiation of concession agreements with host governments setting out the rules and restrictions under which the investing company can expect to conduct its business.

3.   Financing and Operating Policies:

Reduce the exposure of political risk by operating policies such as:

-   Locating different stages of construction in different countries
-   Controlling the means by which finished gods are exported
-   Marketing and treasury management outside the host country.

Reduce the exposure of political risk by choosing appropriate financing policies such as:

-   Secure unconditional guarantees from the host government

(i)   Negotiations with local government – obtain a concession agreement. Transfer of capital, remittances, local finance and government intervention.

- Insurance – make use of the insurance to protect against nationalization, currency risk
- Management structure – decide on the most effective structure for the business, such as a joint venture.

(ii)   Choice of exchange rate – for future cash flows

- What are the local tax rates? Is there a double tax agreement?
- What discount rate should be used? Would the level of risk affect it?

SOLUTION 2

(a)   The cost of leasing the van can be calculated as follows:

Year	Cash Flow	D/F 12%	P.V.
1	(40,000)	0.8979	(35,916)
2	(40,000)	0.7972	(31,888)
3	(40,000)	0.7118	(28,472)
4	(40,000)	0.6355	(25,420)
		NPV	(121,696)

The cost of buying the van can be calculated as

Year	Purchase Costs	DCF	PV	Service Costs	PV
0	(120,000)	1.0000	(120,000)	-	(120,000)
1		0.8979		(13,000)	(11,372.70)
2		0.7972		(13,000)	(10,363.60)
3		0.7118		(13,000)	(9,253.40)
4		0.6355		(13,000)	(8,261.50)
					(39,551.26)
Scrap		0.6355		20,000	12,710
				NPV	(146,841.26)

Advice: Landy Ltd should lease the van

(b)   REPORT

To: The Tinkler Family
From: An Accountant
Date: Today
Subject: **Financial Strategies Under consideration**

I have outlined the merits and risks involved with the financial strategies that you are considering.

Option 1:   **GHC1 million borrowing to finance the development of key departments**
This option could be said to represent (further) organic growth by the company, that is to say the funding of internally-generated projects.

The merits of this strategy would be that:
- The company and the family keep control of the business
- The costs of the project are spread over time
- The rate of change with the business is likely to be slower than under other options.

The main risks would be:
- The risk that the project does not succeed (the 'strategy' seems to be a defensive one – what the company can afford rather than a clear strategy to differentiate the business)
- The process may be too slow and tentative for the company to survive
- The lenders are likely to want a relatively high rate of interest, given the company's current gearing level, bank overdraft and net current assets at zero – although the land and buildings would seem to provide god security.

Option 2: Sell to a Rival
This option may be said to represent the disposal (or possible acquisition) option.

The main merit of this option would be that the risks of investing in the business would be removed.

Similarly, the concentration of risk in one entity could be replaced by investment in a more balanced portfolio.

The main risk would be that the price being offered could be deemed to be too low. (*The land and buildings are said to be worth GHC20 million and the net assets are worth GHC14 million (GHC20m – [GHC5m + GHC1m])*)

It could be deemed a risk of the offer that it is an offer of shares in the rival rather than 'cash'.

This offer has the advantage of a degree of certainty (despite the possible change in share value). The rival is well established; this should reduce risk.

The shareholders might incur capital gains tax upon disposal of the shares.

The timing of payment (in six months' time) is likely to be at least as good as the other offers.

Option 3: Management Buy-out

The main merit of this financial strategy is that it is a cheaper alternative to a close down.

Management should be familiar with the business, paying a reasonable price and having a good chance of success.

The main risks are likely to be that
- There is no guarantee of success
- It is often difficult for MBO teams to immediately finance for a full buy-out
- Management may be concentrating on the buy-out rather than increasing current profits for the business
- Successful MBOs can lead to big gains for management – on which the previous shareholders will have lost out.

In this particular case, the Tinkler family would be at risk to the extent of GHC5 million until the second installment of the consideration were paid and have no control over the operations of the business during this period.

Again, the price of GHC10 million may be deemed to be too low – the net assets are worth GHC14 million.

Option 4: Closing the Business
Closing the business represents the liquidation option. The main merit of this approach is that it allows the assets of the business to be converted into cash before there are (financial) losses and value is lost to shareholders.

The main risks are that the assets fail to realize the expected values and/or costs are greater than expected. It appears that liquidation might not be attractive an option for Tinkler.

	GHC
Land and buildings at market value	20
Less Closure costs	(5)
Net	15
Less Bank overdraft and long-term loans	(6)
Realizable	9

This compares with GHC10 million offered by the rival and by the MBO.

SOLUTION 3

(a)   (i)   Lambert's cost of capital:

Dividend/market capitalization   = $\dfrac{\text{GHC12.25m}}{\text{GHC78.40m}}$ = 15.625%

OR

$r = \dfrac{\text{Do x 100}}{\text{Po}}$ = $\dfrac{\text{GHC12.25m}}{\text{40m}}$ = 0.30625

'r0 = $\dfrac{\text{GHC78.40m}}{\text{40m}}$ = 1.96

$r = \dfrac{0.30625}{1.96}$ =   15.625%

(ii)   Current P/E ratio = market capitalisation/Earnings = $\dfrac{\text{GHC78.40m}}{\text{GHC12.25m}}$ = 6.4

Income statement (after buy-back)

	GHC000	GHC000
Profit before interest and taxation	17,014	
Less: Debenture interest (9% x GHC16.48m [W1])	(1,483)	
Profit before taxation	15,531	
Less: taxation (28%)	(4,349)	
Profit after taxation	11,182	
Market capitalisation of equity (6.4 x GHC11.182m)		71,565
Market value of debentures		16,480
Total market capitalisation		88,045

New Cost of equity
$D0 = \dfrac{\text{GHC11.182m}}{\text{32m}}$ = 0.34944

P0 = 1.96

Therefore new $r = \dfrac{0.34944 \text{ x } 100}{1.96}$ = **17.828%**

Weighted average cost of capital

WACC = $\left\{17.828\% \text{ x } \dfrac{71.565}{71.565 + 16.48}\right\}$ + $\left\{9\% (1 - 0.28) \text{ x } \dfrac{16.480}{71.565 + 16.48}\right\}$ = **15.7%**

WORKING 1

Buy-out of shares

20% x equity shares = 40m x 20%	8m shares
Current share price (GHC78.4m/40m)	GHC1.96
Buy back price (GHC1.96 + GHC0.10)	GHC20.6
Funds required for buy-back (8m x GHC2.06)	GHC16.48m

(iii)   The price-earnings ratio may fall because the equity holders require a higher rate of return (k_e) because of the company's increased financial risk, caused by introducing debt into Lambert's capital structure. However at lower levels of gearing this may not be the case and equity holders would not demand an increased return on their investment.

(iv)   Debenture/loan interest is an allowable expense in a tax computation and as a result a geared company would pay less tax than an equivalent ungeared company. So the former will have more cash to pay out to investors and will be worth more.

Value of debt + equity   =   Value of equity in   +   Tax shield
in a geared firm   equivalent ungeared firm

WACC falls as gearing level rises and so the value of the company rises. Eventually, at higher levels of gearing, WACC will rise again and the value of the company will fall.

Pittway Company

(b)   Current value of stock

	Div	DF@ 18%	PV x Div
1	4	0.8474	3.3896
2	4.6	0.7181	3.30326
3	5.29	0.6086	3.219494
4	6.0835	0.51578	3.13774
			13.050094

$$P4 = \frac{6.0835\,(1.05)}{0.18 - 0.05} = 49.13596$$

PV price =   0.51578 + 49.13596 = 25.343

Hence P0 = 13.050094 + 25.343 = $38.39

SOLUTION 4

(a) Future Value (FV)   =   1,000,000
Present Value (PV)   =   250,000
Time Period (N)   =   18 years

FV   = $PV(1 + i)^n$
= $1,000,000 = 250,000(1 + i)^{18}$
= $(1 + i)^{18} = 1,000,000/250,000$
= $(1 + i)^{18} = 4$
= $1 + I = (4)^{1/18}$
= $I = 1.08 - 1 = 0.08$ or 8%

The required rate of interest to reach the goal is 8%.

(b) Payment (MPT)   =   GHC1.75 million
Number of periods (n) = 20 years,
i.   Present value of annuity (PVA) = ? interest rate (i) = 8%

$$PVA = PMT \times \left(\frac{1 - \dfrac{1}{(1 + i)^n}}{i} \right)(1 + i) = GHC1.75 \left(\frac{1 - \dfrac{1}{(1 + 0.08)^{20}}}{0.08} \right)(1 + 0.08)$$

= GHC1.75 x 9.8181 x 1.08

= **GHC18.56 million**

ii.   Future Value of Annuity (FVA) = ?, Interest rate (i) = 8%

$$FVA = PMT \left[\frac{(1 + i)^n - 1}{i} \right](1 + i)$$

$$= GHC1.75 \left[\frac{(1 + 0.08)^{20} - 1}{0.08} \right](1 + 0.08)$$

= GHC1.75 x 45.7620 x 1.08

= **GHC86.486 million**

iii.   PVA and FVA assuming payments received at the end of year,
        Present value annuity (PVA) =? Interest rate (i) = 8%

We have,

$$\text{PVA} = \text{PMT} \times \left(\frac{1 - \frac{1}{(1+i)^n}}{i} \right)$$

$$= \text{GHC1.75} \times \left(\frac{1 - \frac{1}{(1+0.08)^{20}}}{0.08} \right)$$

$$= \text{GHC1.75} \times 9.8181$$

$$= \textbf{GHC17.18 million}$$

FV – one year payment

$$= \text{GHC1.75} \times \left[\frac{(1+0.08)^{20}}{0.08} \quad -1 \right]$$

$$= \textbf{GHC80.08 million}$$

SOLUTION 5

(i)   The price if new investment does not take place

	Div	DF@ 15%	PV x Div
1	0.20	0.8695	0.1739
2	0.20	0.7561	0.15122
3	0.20	0.6575	0.1315
			0.45662

$$P3 = \frac{0.20\,(1.02)}{0.15 - 0.02} = 1.5692$$

PV price = 0.6575 x 1.5692 = 1.03174

P0 = 0.45662 + 1.03174 = **1.488369**

Value of equity excluding project = GHC1.4884 x 150 million shares = GHC223, 260,000

(ii)   If the new investment take place

$$\text{Share price} = \frac{0.21}{0.16\text{-}0.04} = 1.75 \text{ i.e. GHC1.75}$$

Value of equity including project = GHC1.75 x 200 million = GHC350,000,000

	GHC
Difference in values (350M - 223.26M)	126,740,000
Initial outlay	(50,000,000)
Value generated by investment	76,740,000

Thus the new investment appears to be viable.

(a)   REPORT

To: The Directors, Zimbo plc
From: A Jones, External Consultant
Date: Today
Subject: **Investment and financing of digital television investment**

The new investment is significant in relation to the existing size of the company and is a departure into a related, but new, market. The implications for returns, risk, liquidity and form of finance thus need to be carefully considered.

The new investment

Returns
The calculations provided in appendix 1 (part (a)) show that, using the divided model, there is an increase in share price and hence the project appears to be worthwhile. One minor concern is that, in effect, profits net of taxes are distributed and thus the increase in annual dividend is an increase in profit rather than cash flows. The information relating to cash flows of the project has not been provided. Nevertheless, in the longer term profits are equivalent to cash and the dividend stream is maintained in perpetuity. Therefore the two can, in this instance, be seen as more or less equivalent.

Additionally, there appears to be a significant increase in the value of the company, so there is consideration margin for error.

Risk (Company Accountant and Managing Director)
The existing business relating to digital cameras appear to be risky in the sense of sales volatility and in terms of cost structure (operating gearing). Nevertheless, the question of introducing some financial gearing should not be ruled out entirely on risk grounds without considering other issues. The problem of gearing is examined below.

Debt financing (Finance Director)
The company currently has zero gearing. The introduction of debt to finance the project will produce an advantage with respect to the value of the tax shield on interest.

The finance director is not, however, correct in stating that debt finance at 8% is necessary cheaper than equity at 15%. The risk of the project is greater than the average of existing projects, but if the project were debt financed there would be further financial risk exposure for shareholders in addition to the operating risk. In a perfect world the cost of equity would rise sufficiently to maintain the weighted average cost of capital at 15%, but with the tax advantage of debt it would be a little lower than this.

This point relates to the irrelevance of gearing. This concerns a perfect world (eg no tax, equal borrowing and lending rates, risk averse investors, costless transactions, zero bankruptcy costs). The tax shield generates an advantage to gearing but ultimately bankruptcy costs will create additional cost to gearing as debt approaches high levels. Moreover, gearing will increase both company specific and systematic risk and, in the latter case, will demand a price in the market.

A further cost of debt may be the existence of restrictive covenants, which may prevent the company from taking certain actions, such as the issuing of further debt ranking above this issue. The importance of financial flexibility would thus need to be considered.

A final point relates to the form of debt. The finance director argues for a publicly-issued debenture, but consideration should also be given to privately-issued debt, eg from a bank. This type of debt tends to have lower interest rates and issue costs than debenture, but more covenants and other forms of controls.

Rights issue (Company Accountant)
Where a company faces high operating and business risk it may be prudent to limit financial gearing. The question of the optimal level of gearing is, however, a question of balancing costs and benefits and, even where other types of risk are high, this does not entirely exclude the possibility of debt. The debt financing of this new investment would give a gearing level which would not be high but would still need to be considered after a more detailed examination and quantification of operating and business risk.

Regarding the right issue, its main function is to implement pre-emption rights in respect of existing shareholders, such that they capture the value of the new project and have the opportunity to maintain their share of equity and control in the company.

The issue costs, while smaller than a public issue of shares, and possibly debentures, are likely to be greater with a rights issue than with privately-issued debt.

Conclusion

The project looks to be viable with a considerable margin of safety, notwithstanding the fact that it is likely to result in an increased risk to all finance providers. The optimal form of financing is, however, far from clear: it should be the subject of further detailed analysis and negotiation with the potential finance providers.

(b) Interest rate risk is concerned with the sensitivity of profit and operating cash flows to changes in interest rates. A company will need to analyze how its profits and cash flows are likely to change in response to forecast changes in interest rate and takes decision as to whether action is necessary.

Factors which could influence the decision to hedge interest rate risk include:
- Future financing plan
- Volatility of interest rate
- Effect of changes in interest on profits
- Effects of changes in interest rate on cash flow

(c)   Coupon rate (interest) = 16% @ GHC1,000 =   GHC160

$$
\begin{array}{lll}
& & \text{GHC} \\
\text{PV of interest GHC160 @ 3.589} & = & 574.24 \\
\text{PV of redemption value} \quad \dfrac{\text{GHC1,000}}{0.390} & = & 390.00 \\
\text{Market value} & & \underline{964.24}
\end{array}
$$

Or

$$
\text{Market value} = \left(\frac{1 - \frac{1}{(1 + r)^n}}{r} \times \text{Interest} \right) + \left(\frac{FV}{(1 + r)n} \right)
$$

$$
\left(\frac{1 - \frac{1}{(1.17)^6}} { } \times 160 \right) + \left(\frac{1000}{(1.17)^6} \right)
$$

$$
= \quad \underline{\text{GHC } 964.109}
$$