Answers

1 (a) Sell-off of garden centres

Selling some of the most desirable garden centres, known as selling the crown jewels, may deter some acquirers looking to buy the whole chain if Kingtim Co sells the assets they most desire. Kingtim Co could take this option if it is able to sell off individual centres without jeopardising its overall existence.

However if no particular use is made of the cash raised from the sales, Kingtim Co would still remain a tempting takeover target due to its cash surpluses. Returning the surplus cash to shareholders in the form of a one-off dividend might be popular with shareholders, but equally they might be concerned about their future returns given the sale of assets generating significant income. Shareholders and others interested in Kingtim Co might also question what future strategies the board had in mind if it did not use these cash surpluses for investment.

Also, if the money was distributed to shareholders, Kingtim Co would become a smaller company and perhaps more affordable to some potential acquirers.

Enhanced directors' remuneration and contracts

The enhanced commitments to the directors would represent an increased burden for acquirers, either the costs of honouring them, or the cost and the time involved in terminating the directors' employment and compensating them. This burden may deter acquirers, particularly if the decision to acquire is marginal.

However, enhancing the commitments to the directors could be ineffective. The acquirer could decide to keep the directors on and pay the increased remuneration. Alternatively, the acquirer may feel that buying out the directors' contracts and compensating them is a necessary cost that it is prepared to bear.

Corporate governance aspects are also important. As a listed company, Kingtim Co should have a remuneration committee made up of non-executive directors, who should be reviewing the executive directors' remuneration packages. Kingtim Co may have to publish a remuneration report to explain the rationale for directors' remuneration, and to allow shareholders to discuss and perhaps vote on the report.

Shareholders may believe that the directors are being given a better compensation package without having earned it, and for no other reason than to try to protect their own positions. They may doubt whether directors are acting in the best interests of the company and its shareholders.

(b) Report to board of directors, Kingtim Co

Introduction

This report indicates the impact of the proposed investment in outdoor shops and the consequent increase in debt finance. It also discusses the possible reactions of equity and bond holders to the proposals. Financial estimates provided in the appendices are used to support the discussion and assumptions underlying the estimates are set out below.

Cost of capital

There are two impacts, in opposite directions, on the weighted average cost of capital. Kingtim Co's cost of equity has risen significantly. This is due to increased business risk, resulting from the investment in the outdoor shops and increased financial risk from the additional debt. The increase in the cost of equity has pushed the weighted average cost of capital upwards. However, the higher proportion of debt in the company's finance structure, with debt having a lower cost than equity and also being tax-deductible, has pushed the weighted average cost of capital downwards.

Overall, however, the weighted average cost of capital has risen, meaning the increase in the cost of equity has had the greater impact.

Assumptions

The assumptions about the returns from the new investment may depend on how much Kingtim Co can attract customers away from competitors rather than finding a new market niche itself. Competitor reaction may also impact upon returns.

The CAPM model used is assumed to be a good predictor of equity returns, although some published evidence suggests that it may not be.

The asset beta used for the outdoor shops is a representative beta for similar companies and may not be accurate for Kingtim Co. The asset beta used to calculate the revised cost of equity is a weighted average of the asset betas of the two businesses. The weighting used is the non-current assets in each business, which is assumed to approximate to the size of each business. This assumes that non-current assets currently held are valued fairly, and that their valuation represents their income-generating potential and the proportion of business risk that each business represents.

The share price and price of the existing bonds are assumed to remain unchanged when the new investment is made. As discussed below, there is a strong possibility of changes in the shareholder base leading to changes in the share price and hence in the cost of capital.

Equity holders

Equity holders may consider the returns from the new investment to be insufficient. The pre-tax return of 10% is lower than the 16% pre-tax return on the existing garden centres, and is not much above the 7·5% pre-tax finance cost of the bonds used to finance the investment.

Equity holders are likely to be concerned about the increases in both business and financial risks. The increase in business risk is due to the higher business risk for the outdoor shops, due to the competition in that sector. Equity holders will be concerned about the possible variability of returns and also of dividends, as the company is committed to an increased operating cost burden in terms of extra premises and increased finance costs. Variability of returns may also result in the share price becoming more volatile.

Other aspects concerning equity holders might be any restrictive covenants attached to the new bonds that affect payment of dividends and also the planned repayment of the bonds. Kingtim Co already has a significant commitment to repay the $45m bonds in three years' time. The new bonds would mean an additional commitment to repay $60m just a year later. The alternative is refinancing, but the terms that would be available are currently unknown.

These risks may mean that equity holders reconsider their investment in Kingtim Co, if they are risk-averse and do not feel that the additional returns compensate for the risk. They will take into account that the return on investment in the new business is lower than the current return on investment in the garden centres, although they are not required to make any additional investment themselves for the return on the outdoor shops. The share price will fall if a significant number of shareholders decide to sell their shares, although Kingtim Co may attract a new clientele of shareholders who are more risk-seeking.

Bond holders

Bond holders are likely to be most concerned about Kingtim Co's ability to meet its interest and repayment commitments. Holders of the new bonds are particularly likely to be concerned about the ability to repay their capital, given the commitment to repay existing bond holders. Bond holders may also be concerned about whether the financing of the investment allows Kingtim Co to take undue risks. They may wonder about the motivation for undertaking the new investment using debt finance, particularly if they are not convinced about its business case.

Conclusion

Assuming a strong business case can be made for the investment and the estimates are robust, Kingtim Co may be able to justify financing it solely by debt and claim that the increase in financial risk is within acceptable levels. However, before committing to further debt, Kingtim Co must provide a clear plan for repayment of both the current and new bonds, or offer sufficient assurance that it will be able to refinance its debt when it is due for repayment.

Appendices:

Appendix 1 Estimate of existing cost of capital (b) (i)

Cost of equity

k_e = 4·0% + (0·9 x 9·0%) = 12·1%
Value of equity (V_e) = $5·56 x 25 million shares = $139m

Value of existing bonds

V_d = $104 x 0·45 million = $46·8m

Current WACC

WACC = ((12·1% x 139) + (4·1% x 46·8))/(139 + 46·8) = 10·1%

Appendix 2 Estimate of cost of new bonds (b) (ii)

Annual yield curve

Bond	Government annual yield curve	Credit spread	Kingtim Co annual yield curve
Ga	4%	56	4·56%
Th	4·3%	78	5·08%
De	4·7%	106	5·76%
Ro	5·2%	135	6·55%

Value of new bonds based on annual yield curve

$7·50 x $1·0456^{-1}$ + $7·50 x $1·0508^{-2}$ + $7·50 x $1·0576^{-3}$ + $115·50 x $1·0655^{-4}$ = $109·92

Market value of new bonds

$109·92 x 0·6m = $65·952m

Yield to maturity of new bonds

Year		$	5%	$	3%	$
0	Market value	(109·92)	1·000	(109·92)	1·000	(109·92)
1 – 4	Interest (post-tax)	5·63	3·546	19·96	3·717	20·93
4	Redemption	108·00	0·823	88·88	0·888	95·90
				(1·08)		6·91

YTM (k_d) = 3% + ((6·91/(6·91 + 1·08)) x (5% – 3%)) = 4·7%

Appendix 3 Revised cost of equity and WACC (b) (iii)

β_a garden centre business = 0·9 x (139/(139 + (46·8 x 0·75))) = 0·72

Weighted average β_a = (0·72 x (150/(150 + 60))) + (0·88 x (60/(150 + 60))) = 0·77

β_e = 0·77 x ((139 + ((46·8 + 65·952) x 0·75))/139) = 1·24

k_e = 4·0% + (1·24 x 9·0%) = 15·2%

WACC = ((15·2% x 139) + (4·1% x 46·8) + (4·7% x 65·952))/(139 + 46·8 + 65·952) = 10·4%

Appendix 4 Revised earnings forecast (b) (iv)

Forecast statement of profit or loss for the coming year

	$000
Forecast after-tax earnings ($24m x 0·75)	18,000
Additional finance cost ($60m x 7·5% x 0·75)	(3,375)
Additional after-tax earnings due to new investment ($60m x 10% x 0·75)	4,500
Revised forecast after-tax earnings	19,125
Increase in after-tax earnings	1,125

(c) Approach taken

The stated approach to employee remuneration has some business logic. Expertise, experience, seniority and commitment are all attributes that staff have that could be reflected in extra rewards for them, not only out of fairness to the staff but also because of their value to the business. If staff with these attributes believe they are not being rewarded fairly, they may leave and perhaps join a competitor.

Kingtim Co also has a duty to enhance the wealth of its shareholders and has raised expectations by recently increasing dividends. There is a stakeholder conflict, as increasing the wages of many employees would lead to lower profits and less money available for distribution to shareholders.

Issues with approach

The statement about part-time staff not having the same level of commitment may well be unjust, as they may be as committed as full-time staff during the hours they work.

The current approach raises a number of ethical issues, which may also harm Kingtim Co's reputation. It has made commitments to act in accordance with society's expectations and to treat its staff fairly. Although the basic wage is not legally enforceable, it does represent society's expectations about what employees should be paid. Limiting rewards to staff who may only be able to work part-time because of other commitments could also be something that society judges to be discriminatory and may be against the law.

In addition, if Kingtim Co's directors are given more lucrative contracts as a takeover defence mechanism, this undermines the argument for limiting staff costs in order to maintain shareholder returns.

The consequences of these threats to reputation might again be that lower-paid staff eventually decide to leave. A high staff turnover will mean few staff develop experience and expertise over time, which may impact on customer quality. Kingtim Co may also have problems recruiting staff for its new outdoor business. Customers may also stop shopping at Kingtim Co in protest at the poor treatment of staff.

2 (a) Project cash flows: All figures are in CL millions

Year	0	1	2	3	4
Contribution		419·4	500·2	671·3	961·2
Fixed costs		(270·0)	(291·6)	(314·9)	(340·1)
Tax allowable depreciation		(175·0)	(175·0)	(175·0)	(175·0)
Taxable profit/(loss)		(25·6)	33·6	181·4	446·1
Tax loss carried forward			(25·6)		
Adjusted taxable profit		(25·6)	8·0	181·4	446·1
Taxation (25%)			(2·0)	(45·4)	(111·5)
Add loss carried forward			25·6		
Add depreciation		175·0	175·0	175·0	175·0
Cash flows after tax		149·4	206·6	311·0	509·6
Working capital (w2)	(25·0)	(2·5)	(2·8)	(3·0)	33·3
Investment cost	(775·0)				214·2
Cash flows	(800·0)	146·9	203·8	308·0	757·1

Cash flows: All figures are in € millions

Year	0	1	2	3	4
Exchange rate (w1)	9·91	10·48	11·09	11·96	12·89
Total investment cost	(80·7)				
Remittable cash flows		14·0	18·4	25·8	58·7
Component contribution (w3)		0·9	1·1	1·3	1·8
Tax on net contribution (20%)		(0·2)	(0·2)	(0·3)	(0·4)
Cash flows	(80·7)	14·7	19·3	26·8	60·1

Net present value using 16% discount rate: All figures are in € millions

Year	0	1	2	3	4
Cash flows	(80·7)	14·7	19·3	26·8	60·1
Discount rate (16%)	1·000	0·862	0·743	0·641	0·552
Present values	(80·7)	12·7	14·3	17·2	33·2

Net present value (€3·3m)

Net present value using 13% discount rate: All figures are in € millions

Year	0	1	2	3	4
Cash flows	(80·7)	14·7	19·3	26·8	60·1
Discount rate (13%)	1·000	0·885	0·783	0·693	0·613
Present values	(80·7)	13·0	15·1	18·6	36·8

Net present value €2·8m

Workings

Working 1 (w1): Exchange rates

Year	1	2	3	4
CL/€	9·91 x 1·10/1·04 = 10·48	10·48 x 1·10/1·04 = 11·09	11·09 x 1·10/1·02 = 11·96	11·96 x 1·10/1·02 = 12·89

Working 2 (w2): Working capital (CLm)

Year	0	1	2	3	4
Inflation		10%	10%	10%	10%
Increase with inflation	(25·0)	(27·5)	(30·3)	(33·3)	
Incremental working capital	(25·0)	(2·5)	(2·8)	(3·0)	33·3

Working 3 (w3): Component contribution (€)

Year	1	2	3	4
Contribution	109,725 x 8 x 1·04 = 0·9m	121,795 x 8 x $1{\cdot}04^2$ = 1·1m	148,590 x 8 x $1{\cdot}04^2$ x 1·02 = 1·3m	197,624 x 8 x $1{\cdot}04^2$ x 1·022 = 1·8m

Comment

The decision whether to accept or reject the project critically depends on the discount rate, switching from a negative net present value of €3·3m when the discount rate includes a country risk premium to a positive net present value of €2·8m when there is no premium. This adjustment to the weighted average cost of capital requires further investigation because it is possible Colvin Co could reject projects that increase shareholder wealth.

The outcome assumes the contribution and other cash flows are reliably estimated. Other critical inputs include the assumption that land and buildings will increase in value at an annual rate of 30% and that any disposal is tax exempt.

(b) There are a number of possible strategies to avoid exchange controls on remittances. Colvin Co could increase the transfer price paid by the Canvian subsidiary for the gearing system component. This would increase Colvin Co's profit to the detriment of the subsidiary's profit. Alternatively, Colvin Co doesn't currently levy a management charge or royalty but if these were introduced it would transfer profit from the subsidiary without the need for a dividend.

These methods assume the exchange controls imposed in Canvia are not applied to repatriations in general. An alternative would be for Colvin Co's subsidiary to make a loan to the Canvian subsidiary of another Eurozone based parent company which, in return, would lend an equivalent amount in Euros to Colvin Co. The same objective could be achieved with a currency swap although counterparty risk would be a factor in both cases.

(c) Colvin Co's investment in Canvia does not involve a change in business risk or capital structure. The company's weighted average cost of capital would normally be expected to provide a reasonable measure of risk for the new project. The chief executive's justification for a risk premium is based on the increased risk the company is exposed to in Canvia, a developing economy, compared to the company's existing business in the Eurozone. This perception of increased risk is based on a country risk index, which compares the standard deviation of market indices around the world. The chief executive has incorporated other factors, such as political risk and foreign exchange risk in determining this premium.

However, standard deviation is not the appropriate measure of risk for Colvin Co's investment since any portion of total risk that is uncorrelated across different markets can be diversified away at no cost to investors. For example, adverse political events in Canvia may be partially offset by more favourable events in other parts of the world. No rational investor would pay a premium for risk that can be avoided. In this sense, although Colvin Co's investment in Canvia is exposed to foreign exchange risk, this too can be mitigated by an appropriate hedging policy.

Furthermore, Colvin Co's institutional shareholders are likely to be well diversified across global markets and asset classes. The potential for further risk reduction by Colvin Co from diversifying operations globally is therefore limited when the shareholders can achieve this more efficiently on their own.

The only component of total risk that could justify a premium to Colvin Co's cost of capital is market risk or undiversifiable risk. This assumes returns across countries are significantly positively correlated. For example, there is a strong possibility that a recession in the Eurozone may lead to a downturn in Canvia too rather than offset it, transmitted through trade links and closer integration between markets. This tendency for markets across the world to move together means reduced risk reduction benefits from diversification, hence a higher cost of capital. The key issue therefore is whether the risk of the new investment is diversifiable or not. If returns across markets are significantly positively correlated and the risk undiversifiable, the new project in Canvia may therefore command a risk premium although no justification is provided for the chief executive's premium of 3% which would require further investigation and analysis.

3 (a) Swap

	Fitzharris Co	Counterparty	Interest rate differential
Fixed rate	4·60%	4·80%	0·20%
Floating rate	Base rate + 0·50%	Base rate + 1·30%	0·80%

Fitzharris Co has an advantage in borrowing at both fixed and floating rates, but the floating rate advantage is larger.

Gain % for Fitzharris Co = 50% (0·8 – 0·2 – 0·1) = 0·25

	Fitzharris Co	Counterparty
Rate without swap	(4·60%)	(Base rate + 1·30%)
Benefit	0·25%	0·25%
Net result	(4·35%)	(Base rate + 1·05%)

Swap

Borrows at	(Base rate + 0·50%)	(4·80%)
Fitzharris Co pays	(3·80%)	3·80%
Counterparty pays	Base rate	(Base rate)
Bank fee	(0·05%)	(0·05%)
Net result	(4·35%)	(Base rate + 1·05%)

Collar

Buy December put options at 95·75 for 0·211 and sell December call options at 96·25 for 0·198
Number of contracts = ($48,000,000/$1,000,000) x (36 months/3 months) = 576**
Basis = Current price (1 August) – futures price
(100 – 3·70) – 95·85 = 0·45
Unexpired basis on 1 December = 1/5 x 0·45 = 0·09
Premium = (0·00211 – 0·00198) = 0·013%

If base rate rises by 0·4% to 4·1%

Futures price = 100 – 4·1 – 0·09 = 95·81

	Buy put	Sell call
Exercise price	95·75	96·25
Futures price	95·81	95·81
Exercise?*	No	No
Loss in basis points	–	–

* The put option is not exercised, because Fitzharris Co can sell the futures at the futures market price of 95·81 rather than the option exercise price of 95·75. The call option is not exercised, as the option holder can buy the futures at the lower futures market price of 95·81 rather than the exercise price of 96·25.

	%
Borrowing cost (4·1% + 0·5%)	4·600
Premium	0·013
Effective annual interest rate	4·613

If base rate falls by 0·4% to 3·3%

Futures price = 100 – 3·3 – 0·09 = 96·61

	Buy put	Sell call
Exercise price	95·75	96·25
Futures price	96·61	96·61
Exercise?*	No	Yes
Loss in basis points	–	36

* The put option is not exercised, as by not exercising the option Fitzharris Co can sell the futures at the higher futures market price of 96·61 rather than the lower exercise price of 95·75. The call option is exercised, because the option holder can buy the futures at the option exercise price of 96·25 rather than the futures market price of 96·61.

	%
Borrowing cost (3·3% + 0·5%)	3·800
Loss on options (0·0036 x 100)	0·360
Premium	0·013
Effective annual interest rate	4·173

**** Note for tutors**

It is possible to justify a range of different hedging periods for this situation. Any justified hedging period from the four-month period of uncertainty, outlined in the question, up to 36 months was awarded credit. It was recognised that in reality a collar for 36 months would not happen and instead there would be a rolling series of hedges.

Answers which calculated costs in dollar amounts based on their number of contracts and then calculated an effective annual rate, were also eligible for full credit.

(b) Comment

The calculations do not give a clear indication of which strategy should be chosen. The swap gives a better result if base rate rises by 0·4%, the options if base rate falls by 0·4%. The decision may be determined by whether the company views a rise or fall in interest rates as being more likely, or how it views the advantages and disadvantages of the strategies.

Advantages of swaps

As swaps are over-the counter arrangements, they can be arranged in any size. The amount covered by collars based on traded options is determined by the size of the option contract. There may be over and under hedging.

The traded options available may last for a short period, perhaps up to two years, less maybe than the period of the loan. Swaps can be arranged for a much longer period.

Fitzharris Co is swapping here a commitment to pay a variable rate of interest that is uncertain with a guaranteed fixed rate of interest. This allows Fitzharris Co to forecast finance costs on the loan with certainty. The net payments on the collar will depend on how interest rates move.

Unlike collars, swaps make use of the principle of comparative advantage. Fitzharris Co can borrow in the market where the best deal is available to it.

Disadvantages of swaps

Swaps are subject to counterparty risk, the risk that the other party may default on the arrangement. This should not generally be a problem if Fitzharris Co arranges the swap through the bank. It may, however, be a problem if it arranges the swap itself. As the options that the collar is based on are traded on the derivatives markets, this should guarantee there will be no counterparty risk.

As Fitzharris Co is swapping into a fixed rate commitment, it cannot take advantage of favourable interest rate changes as it could, to some extent, if it used collars. Here the swap results in a lower cost than the collar if interest rates rise, but the collar is better if interest rates fall.

As swaps are over-the-counter instruments, they cannot be traded or allowed to lapse if they are not needed. The options can be traded on a derivative market.

(c) Time

An option's price consists of two elements, its intrinsic value and its time premium. The time premium diminishes over time to zero at the point that the option expires. Theta measures how much time value is lost over time. It is generally expressed as an amount lost per day. Theta reduces the value of both put and call options for holders.

The change in theta for in the money and out of the money options is broadly linear. At the money options have the greatest time premium and greatest theta. Theta for at the money options does not change in a linear fashion, but changes more rapidly as the expiry date approaches.

Interest rate

Rho measures how the option price varies with changes in interest rates. An option's rho is the amount of change in value for a 1% change in the option's risk free interest rate. The rho is positive for call options if the risk-free interest rate increases and negative for put options.

Compared with other factors affecting option price, the interest rate is not a significant influence, as interest rates often move slowly. A change in interest rates will be more significant the longer the time until expiry of an option.

				Marks
1	**(a)**	Sell-off assets (examples of points could include company less appealing, use of proceeds from sell-off, how Kingtim Co will be viewed, smaller company being more affordable)		3–4
		Onerous contracts (examples of points could include cost burden, acquirer may be prepared to bear it, corporate governance requirements, shareholder reaction)		3–4
			Max	**7**
	(b)	**(i)** Cost of equity		1
		Value of equity		1
		Value of existing bonds		1
		WACC		1
				4
		(ii) Annual spot yield curve		1
		Value of new bonds		3
		Market value of new bonds		1
		Yield to maturity of proposed bonds		2
				7
		(iii) Asset beta garden centre business		1
		Weighted asset beta		2
		Revised equity beta		1
		Revised cost of equity		1
		Revised WACC		2
				7
		(iv) Revised P/L		3
				3
		(v) Cost of capital		1–2
		Assumptions		3–4
		Equity holders (examples of points could include inadequate returns, higher business and financial risks, threat to earnings/dividend/share price, covenant/repayment commitments, forecast extra earnings insufficient, sale of shares/changes in shareholder base)		3–4
		Bond holders		2–3
			Max	**10**
		Professional marks for part (b)		
		Report format		1
		Structure and presentation of the report		3
				4
	(c)	Up to 2 marks for each well-explained issue (issues could include rewarding expertise/seniority fairly, balancing shareholder and employee interests, unfair to question staff's commitment, society's expectations/law, expectations raised by Kingtim Co's statements, employee/customer reaction to poor practices)		8
			Max	**8**
			Total	**50**

				Marks
2	**(a)**	Exchange rates		2
		Tax		2
		Working capital		2
		Land and buildings residual value		1
		Remittable cash flows in euros		1
		Contribution from component		2
		Tax on contribution		1
		Net present values		2
		Comment		2–3
			Max	**15**
	(b)	Up to 2 marks per point (e.g. transfer price, royalty)	**Max**	4
	(c)	Up to 2 marks per point (e.g. argument for WACC, total risk v market risk, correlation across countries)		6
			Max	**6**
			Total	**25**
3	**(a)**	**Swaps**		
		Comparative advantage of 0·6%		1
		Initial decision to borrow floating by Fitzharris Co and fixed by counterparty		1
		Advantage of 0·25% per party after the bank fee		1
		Suitable swap rates		1
		Final rate to be paid by Fitzharris Co		1
		Collars		
		Number of contracts		1
		Basis calculation		1
		Buy put and sell call options		1
		Premium calculation		1
		Exercise options?		2
		Impact of interest rate increase/decrease with collars		2
				13
	(b)	Comment on calculations		1
		Advantages of swaps compared with collars (advantages could include flexibility, longer time period, certainty of finance costs, comparative advantage)		3–4
		Disadvantages of swaps compared with collars (disadvantages could include counterparty risk, inability take advantage of favourable rate movements, swaps cannot be traded)		3–4
			Max	**8**
	(c)	Time (Theta)		2–3
		Interest rate (Rho)		2–3
			Max	**4**
				25