Answers

Section B

16 B $k_e = 2{\cdot}5 + (1{\cdot}05 \times 7{\cdot}8) = 10{\cdot}7\%$

17 D

Year	$	5% DF	PV	6% DF	PV
0	(100·00)	1·000	(100·00)	1·000	(100·00)
1–5	3·00	4·329	12·99	4·212	12·64
5	115·00	0·784	90·16	0·747	85·91
			3·15		(1·45)

$k_d = 5 + (3{\cdot}15/(3{\cdot}15 + 1{\cdot}45)) = 5{\cdot}7\%$

18 A The capital asset pricing model assumes that all shareholders of a company have the same required rate of return.

19 C Retained earnings are a source of equity finance.

20 B Murabaha is similar to trade credit and therefore would not meet Tulip Co's needs. It is correct to state that Mudaraba involves an investing partner and a managing or working partner.

21 C Net realisable value = 1,350 – (768 – 600) – (192 x 0·1) – 30 – 105 – 662 = $365·8m

22 C Earnings yield = 100 x 1/12·5 = 8%
Value = 150/0·08 = $1,875m

23 A Asset-based valuations are useful in asset-stripping acquisitions.

24 C Overreaction to unexpected news is an example of a market imperfection. So is the low volume of trading of small company shares.

25 B A control premium will be paid on shares when buying a controlling stake.

26 C A kink in the normal yield curve can be due to differing yields in different market segments.

27 C Company pays bank
100m x (9/12) x (7·1 – 6·5)/100 = $450,000

28 D 12-month forward rate = 5 x 1·1/1·065 = 5·1643 pesos per $1
6-month forward rate = 5 x 1·05/1·0325 = 5·0848 pesos per $1
Income = (200/5·0848) + (380/5·1643) = $112·9m

29 C Both statements are true.

30 B A borrower can hedge interest rate risk by selling interest rate futures now and buying them back in the future.

Section C

31 Corfe Co

(a) $k_e = 3{\cdot}5\% + (1{\cdot}25 \times 6{\cdot}8\%) = 12{\cdot}00\%$

$k_{pref} = (0{\cdot}06 \times 0{\cdot}75)/0{\cdot}64 = 7{\cdot}03\%$

Loan notes

After tax interest payment	8% x (1 – 0·2) = 6·4%
Nominal value of loan notes	100·00
Market value of loan notes	103·50
Time to redemption (years)	5
Redemption premium (%)	10

Year		$	5% DF	PV ($)	10% DF	PV ($)
0	MV	(103·50)	1·000	(103·50)	1·000	(103·50)
1–5	Interest	6·40	4·329	27·71	3·791	24·26
5	Redeem	110·00	0·784	86·24	0·621	68·31
				10·45		(10·93)

IRR = 5 + ((10 – 5) x (10·45/(10·45 + 10·93))) = 7·44%

This figure can also be used for the cost of debt of the bank loan.

Market values and WACC calculation

	BV ($m)	Nominal	MV	MV ($m)	Cost (%)	MV x Cost (%)
Equity shares	15	1·00	6·10	91·50	12·00	1,098·00
Preference shares	6	0·75	0·64	5·12	7·03	35·99
Loan notes	8	100	103·50	8·28	7·44	61·60
Bank loan	5			5·00	7·44	37·20
				109·90		1,232·79

WACC = 100% x 1,232·79/109·90 = 11·22%

(b) **Director A**

Director A is incorrect in saying that $29m of cash reserves are available. Reserves are $29m, but this figure represents backing for all Corfe Co's assets and not just cash.

Corfe Co has $4m of cash. Some of this could be used for investment, although the company will need a minimum balance of cash to maintain liquidity for its day-to-day operations.

Corfe Co's current ratio is (20/7) = 2·86. This may be a high figure (depending on the industry Corfe Co is in), so Corfe Co may have scope to generate some extra cash by reducing working capital. Inventory levels could be reduced by just-in-time policies, trade receivables reduced by tighter credit control and payments delayed to suppliers. All of these have possible drawbacks. Just-in-time policies may result in running out of inventory, and tighter policies for trade receivables and payables may worsen relations with customers and suppliers. Again also, Corfe Co would have to maintain minimum levels of each element of working capital, so it seems unlikely that it could raise the maximum $25m solely by doing what Director A suggests.

Director B

Selling the headquarters would raise most of the sum required for investment, assuming that Director B's assessment of sales price is accurate. However, Corfe Co would lose the benefit of the value of the site increasing in future, which may happen if the headquarters is in a prime location in the capital city. Being able to sell the headquarters would be subject to the agreement of lenders if the property had been used as security for a loan. Even if it has not been used as security, the sale could reduce the borrowing capacity of the company by reducing the availability of assets to offer as security.

An ongoing commitment to property management costs of an owned site would be replaced by a commitment to pay rent, which might also include some responsibility for property costs for the locations rented. It is possible that good deals for renting are available outside the capital city. However, in the longer term, the rent may become more expensive if there are frequent rent reviews.

There may also be visible and invisible costs attached to moving and splitting up the functions. There will be one-off costs of moving and disruption to work around the time of the move. Staff replacement costs may increase if staff are moved to a location which is not convenient for them and then leave. Senior managers may find it more difficult to manage functions which are in different locations rather than the same place. There may be a loss of synergies through staff in different functions not being able to communicate easily face-to-face any more.

Director C

The dividend just paid of $13·5m seems a large amount compared with total reserves. If a similar level of funds is available for distribution over the next two years, not paying a dividend would fund the forecast expenditure.

However, shareholders may well expect a consistent or steadily growing dividend. A cut in dividend may represent a significant loss of income for them. If this is so, shareholders may be unhappy about seeing dividends cut or not paid, particularly if they have doubts about the directors' future investment plans. They may see this as a signal that the company has poor prospects, particularly if they are unsure about why the directors are not seeking finance from external sources.

The directors' dividend policy may also be questioned if the dividend just paid was a one-off, high payment. Such a payment is normally made if a company has surplus cash and does not have plans to use it. However, the directors are planning investments, and shareholders may wonder why a high dividend was paid when the directors need money for investments.

32 Pinks Co

(a) (i) Nominal terms appraisal of the investment project

Year	1	2	3	4
	$000	$000	$000	$000
Sales revenue	39,375	58,765	85,087	32,089
Variable cost	(22,047)	(31,185)	(41,328)	(17,923)
Contribution	17,328	27,580	43,759	14,166
Fixed costs	(3,180)	(3,483)	(3,811)	(3,787)
Cash flows before tax	14,148	24,097	39,948	10,379
Tax at 26%	(3,679)	(6,265)	(10,387)	(2,699)
TAD benefits	1,300	975	731	2,194
Cash flows after tax	11,769	18,807	30,292	9,874
Discount at 12%	0·893	0·797	0·712	0·636
Present values	10,510	14,989	21,568	6,280

	$000
Sum of PVs of future cash flows	53,347
Initial investment	20,000
NPV	33,347

Workings

Year	1	2	3	4
Selling price ($/unit)	125	130	140	120
Inflated by 5%/year	131·25	143·33	162·07	145·86
Sales volume (units/year)	300,000	410,000	525,000	220,000
Sales revenue ($000/year)	39,375	58,765	85,087	32,089
Variable cost ($/unit)	71	71	71	71
Inflated by 3·5%/year	73·49	76·06	78·72	81·47
Sales volume (units/year)	300,000	410,000	525,000	220,000
Variable cost ($000/year)	22,047	31,185	41,328	17,923
Fixed costs ($000/year)	3,000	3,100	3,200	3,000
Inflated by 6%/year	3,180	3,483	3,811	3,787
TAD ($000)	5,000	3,750	2,813	8,437
TAD benefits ($000)	1,300	975	731	2,194

(ii) Real terms appraisal of the investment project

Year	1	2	3	4
	$000	$000	$000	$000
Nominal cash flows before tax	14,148	24,097	39,948	10,379
Real cash flows before tax	13,643	22,408	35,823	8,975
Tax at 26%	(3,547)	(5,826)	(9,314)	(2,334)
TAD benefits	1,300	975	731	2,194
Cash flows after tax	11,396	17,557	27,240	8,835
Discount at 8%	0·926	0·857	0·794	0·735
Present values	10,553	15,046	21,629	6,494

	$000
Sum of PVs of future cash flows	53,722
Initial investment	20,000
NPV	33,722

Comment: The real terms appraisal gives almost the same positive NPV as the nominal terms appraisal, the difference being due to the different discount rate being applied to the same TAD benefits. As the NPV is positive, the investment project is financially acceptable.

(b) The achievement of stakeholder objectives by managers can be encouraged by managerial reward schemes, for example, share option schemes and performance-related pay (PRP), and by regulatory requirements, such as corporate governance codes of best practice and stock exchange listing regulations.

Share option schemes

The agency problem arises due to the separation of ownership and control, and managers pursuing their own objectives, rather than the objectives of shareholders, specifically the objective of maximising shareholder wealth. Managers can be encouraged to achieve stakeholder objectives by bringing their own objectives more in line with the objectives of stakeholders such as shareholders. This increased goal congruence can be achieved by turning the managers into shareholders through share option schemes, although the criteria by which shares are awarded need very careful consideration.

Performance-related pay

Part of the remuneration of managers can be made conditional upon their achieving specified performance targets, so that achieving these performance targets assists in achieving stakeholder objectives. Achieving a specified increase in earnings per share, for example, could be consistent with the objective of maximising shareholder wealth. Achieving a specified improvement in the quality of emissions could be consistent with a government objective of meeting international environmental targets. However, PRP performance objectives need very careful consideration if they are to be effective in encouraging managers to achieve stakeholder targets. In recent times, long-term incentive plans (LTIPs) have been accepted as more effective than PRP, especially where a company's performance is benchmarked against that of its competitors.

Corporate governance codes of best practice

Codes of best practice have developed over time into recognised methods of encouraging managers to achieve stakeholder objectives, applying best practice to many key areas of corporate governance relating to executive remuneration, risk assessment and risk management, auditing, internal control, executive responsibility and board accountability. Codes of best practice have emphasised and supported the key role played by non-executive directors in supporting independent judgement and in following the spirit of corporate governance regulations.

Stock exchange listing regulations

These regulations seek to ensure a fair and efficient market for trading company securities such as shares and loan notes. They encourage disclosure of price-sensitive information in supporting pricing efficiency and help to decrease information asymmetry, one of the causes of the agency problem between shareholders and managers. Decreasing information asymmetry encourages managers to achieve stakeholder objectives as the quality and quantity of information available to stakeholders gives them a clearer picture of the extent to which managers are attending to their objectives.

Monitoring

One theoretical way of encouraging managers to achieve stakeholder objectives is to reduce information asymmetry by monitoring the decisions and performance of managers. One form of monitoring is auditing the financial statements of a company to confirm the quality and validity of the information provided to stakeholders.

Note: Only four ways to encourage the achievement of stakeholder objectives were required to be discussed.

			Marks	*Marks*
Section B				
16–30	Two marks per question		**30**	
Section C				
31	**(a)**	k_e setup	1	
		k_e calculation	1	
		k_p calculation	1	
		Int notes after tax	1	
		k_d setup	1	
		k_d calculation	1	
		k_d bank loan	1	
		MV equity shares	0·5	
		MV pref shares	0·5	
		MV loan notes	0·5	
		MV bank loan	0·5	
		WACC calculation	2	
				11
	(b)	Director A	3	
		Director B	3	
		Director C	3	
				9
				20
32	**(a)**	**(i)** Sales nominal	1	
		VC nominal	1	
		FC nominal	1	
		Tax liability	1	
		TAD	1	
		TAD benefits	1	
		Tax timing	1	
		PVs and nominal NPV	1	
				8
		(ii) Real CF before tax	1	
		Tax treatment	1	
		PVs and real NPV	1	
		Comment	1	
				4
	(b)	First way	2	
		Second way	2	
		Third way	2	
		Fourth way	2	
				8
				20

Financial Management Examiner's commentary on March/June 2019 sample questions

This commentary has been written to accompany the published sample questions and answers and is written based on the observations of markers. The aim is to provide constructive guidance for future candidates and their tutors, giving insight into what the marking team is looking for, and flagging pitfalls encountered by candidates who sat these questions.

Corfe Co

(a)

The requirement here was for candidates to calculate the after-tax weighted average cost of capital (WACC) of a company on a market value basis. Many answers gained good marks here.

The question provided information which allowed the capital asset pricing model (CAPM) to be used to calculate the cost of equity and most candidates were able to calculate this correctly. The CAPM formula is provided in the Financial Management formulae sheet. Some candidates incorrectly used the equity risk premium as the return on the market, when the equity risk premium is the difference between the return on the market and the risk-free rate of return.

Some answers incorrectly attempted to use the dividend growth model (DGM) to calculate the cost of equity, but the question did not give information which allowed the DGM to be used, for example, the future dividend growth rate was not known.

Most candidates were able to calculate correctly the cost of capital of the preference shares. One potential source of error was using $1·00 as the nominal value of the shares, rather than $0·75 as given in the question, leading to miscalculation of the preference dividend. Another source of error was not recognising that preference shares pay a dividend, which is a distribution of after-tax profit, and treating the preference dividend as though it were interest by including a tax effect.

Most candidates correctly calculated the after-tax interest payment for including in a linear interpolation calculation of the after-tax cost of debt of the 8% loan notes. Errors were sometimes made by using an incorrect value for the current ex interest market value of the loan notes, for example, using nominal value, or by using an incorrect value for the redemption value of the loan notes, again, for example, using the nominal value.

Some spreadsheet calculations of the after-tax cost of debt of the 8% loan notes lost marks by incorrectly applying the spreadsheet IRR function to three cash flows (such as –103·5, +6·4, +110), when it had to be applied to cash flows for each of six years (–103·5, +6·4, +6·4, +6·4, +6·4, +116·4).

Some candidates ignored the cost of debt of the bank loan, even though it was identified in the question as a non-current liability. Because the bank loan had a variable interest rate, a justified value for inclusion in the WACC calculation had to be provided. Some candidates correctly identified the after-tax cost of debt of the loan notes as an appropriate proxy value, while other argued for the after-tax interest rate on the loan notes. Some candidates used a value without providing an explanation for their choice. Whatever approach was adopted, the bank loan could not be ignored. Surprisingly, some candidates used the cost of equity, calculated using the CAPM, as the cost of debt of the bank loan.

In calculating the WACC itself, it was surprising to see some candidates using book values as weights when the explicit requirement was for a market value basis. Most candidates who calculated market values did so correctly. Some candidates included a tax effect in the WACC calculation when their calculated cost of debt was already on an after-tax basis. Some candidates unbalanced their weights by including the book value of the bank loan in the denominator while excluding the term for the cost of debt of the bank loan from the numerator.

(b)

Candidates were required here to discuss three suggestions on how an investment project costing $25m could be funded from internal finance sources. The first suggestion was to use reserves and a reduced investment in working capital. The second suggestion was to use the proceeds from selling the company' headquarters and relocating head office functions to several locations outside of the capital city. The third suggestion was to use cash released from a three-year reduction in dividends.

The problem with the first suggestion was that while the company had reserves of $29m, it only had $4m of cash and cash equivalents. Surprisingly, many candidates incorrectly believed that the company's equity reserves were cash which could be invested and discussed, sometimes at length, how the reserves represented an attractive source of finance which provided the full amount of cash needed. As for reducing investment in working capital, many candidates correctly discussed some of the difficulties which might arise in undertaking such a change in working capital investment strategy.

Discussion of the second suggestion was frequently of a good standard, with candidates correctly noting that while the full amount of the required finance could be delivered by the proposed sale, it might not be an immediate source of finance and its availability depended on whether the building was being used as security for debt finance. Some candidates queried the relocation costs which might arise, and the disruption to head office operations, and employee travel and working patterns, which might result, as well as the cost of renting or leasing accommodation outside the capital city.

Discussion of the third suggestion tended to focus on the reaction of shareholders to a cut in dividends, the existence of a dividend clientele, and arguments relating to dividend relevance or irrelevance in determining company value. Many candidates did not quantify the finance

which might be available from a dividend cut, even though information which allowed such a calculation was given in the question.

Pinks Co

(a)(i)

Candidates were required here to calculate the nominal net present value (NPV) of an investment project, incorporating inflation and taxation into the calculation. Many answers gained good marks here.

In relation to inflation, one error which occurred was inflating each year by one year only, when inflation has a compounding effect. A small number of candidates used an inflation rate of 50% instead of 5% in relation to selling price inflation, and 35% instead of 3·5% for variable cost inflation. There were occasionally magnitude errors when calculating inflated incremental fixed costs, such as using $3,180 instead of $3,180,000. Forecast fixed costs were different in the second and third years to those in the first year, but some candidates incorrectly inflated the first-year value throughout the four-year period. Surprisingly, some candidates, having applied specific inflation correctly to selling prices, variable costs and fixed costs, then applied the general rate of inflation as well.

In general, most candidates did quite well in relation to taxation calculations, where the most frequent error was omitting a balancing allowance from the fourth-year calculation of tax-allowable depreciation (TAD). Although the question stated that the tax liability was settled in the year in which it arose, some candidates incorrectly placed tax cash flows one year in arrears. Some candidates also incorrectly used a taxation rate which was different from the 26% figure provided in the question.

Some candidates incorrectly located the initial investment at the end of the first year when, as an initial investment, it should have been located at year 0.

Although the question provided a nominal after-tax cost of capital, some candidates calculated and applied a different figure by putting values into the Fisher equation.

(a)(ii)

The requirement here was for candidates to calculate the real NPV of the investment project.

The correct approach to calculating the real before-tax cash flows was to deflate the nominal before-tax cash flows using the general rate of inflation. These cash flows could then be adjusted for taxation and discounted using the real cost of capital. Many candidates did not adopt the correct approach. One incorrect approach adopted by some candidates was to use the nominal after-tax cash flows, without considering deflation, discounted by the real cost of capital. Using nominal cash flows as real cash flows in this way shows a lack of understanding of the difference between the real terms and nominal terms approaches to

investment appraisal. Another approach adopted by some candidates was to calculate the before-tax cash flows ignoring inflation and then adjust for taxation, before discounting by the real cost of capital. It must be emphasised that real cash flows are found by inflating using specific inflation and then deflating by the general rate of inflation. Only when there is no specific inflation, which was not the case here, can general inflation be ignored.

Candidates were also required to comment on their findings and many comments were limited to saying whether the investment project was financially acceptable. Many candidates were not aware that the nominal terms approach and the real terms approach should give the same NPV, and discussed, sometimes at length, the reasons for the differences in value between their nominal and real NPVs.

(b)

This part of the question required candidates to discuss four ways by which managers might be encouraged to achieve stakeholder objectives.

Since eight marks were offered for discussing four ways of encouraging managers, it seems a reasonable deduction that two marks were offered for each way discussed. Good examination technique suggests discussing four ways and spending an equal amount of time on each way. Marks would clearly be lost if candidates discussed fewer than four ways.

Many candidates correctly discussed performance-related pay (PRP) as a way of encouraging managers to achieve stakeholder objectives, linking performance to specific stakeholders, suggesting, for example, that a PRP target such as EPS could be linked to shareholder objectives, while an emissions-related PRP target could be linked to government objectives.

Many candidates correctly discussed share option schemes, perhaps linking these to addressing the agency problem between shareholders and managers, and indicating the corporate and shareholder benefits which might arise if managers saw themselves as shareholders.

Other ways of encouraging managers to achieve stakeholder objectives, such as the application of corporate governance, are discussed in the suggested solution.

Some candidates did not gain marks because they did not focus on the question requirement in relation to encouraging managers. For example, some candidates discussed the need to separate the roles of CEO and MD, but did not explain how this separation might encourage managers to achieve stakeholder objectives. Similarly, some candidates suggested that managers should receive a bonus, but did not suggest what that bonus might be for.

Some candidates lost marks by offering answers which were too brief for the marks available, lacking the discussion which was part of the question requirement. For example, 'offer them company shares' gains no marks because it is not discussion. Explanation is needed as to why this might encourage managers to seek to achieve objectives of stakeholders. Other candidates lost marks by discussing topics outside the requirement of the question, such as the origins of

the agency problem, or the shortcomings of EPS as a managerial performance target, or the need for managers to use DCF investment appraisal techniques.